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Original Articles

CLINICAL PROBLEMS IN CONNECTION WITH SOME OF THE COMPLICATIONS OF ACUTE OTITIS MEDIA.*

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The serious intra-cranial complications of acute otitis media, including sinus thrombosis and meningitis, develop usually as a sequal to mastoid involvement. In most cases these complications follow on the formation of a distinct mastoid abscess, that is, an abscess cavity formed by the softening of the mastoid bone. In some cases the complications develop without any distinct evidence of softening in the mastoid.

In the diagnosis of an acute mastoid abscess two clinical facts must always be kept in mind: first, that a mastoid involvement, with symptoms over the mastoid process, is very often present in cases where no mastoid abscess has developed; second, that a mastoid abscess, with extensive softening of the bone, often develops without any evidence of trouble over the mastoid region. Mastoiditis with marked symptoms is a frequent complication of an acute otitis media, but the development of a mastoid abscess requiring surgical interference is by no means so common. It is clear, therefore, that in deciding whether a particular case requires a mastoid operation it will be necessary often to make a very careful study of the case. We sometimes hear of mastoiditis being operated on within a day or two after the onset of an otitis media. Such a procedure is usually a mistake, since the most of these cases will recover without an operation and in the absence of symptoms indicating an intracranial complication such cases should usually be kept under observation until the diagnosis of an abscess formation can be reasonably assured before an operation is advised.

In studying cases of acute mastoiditis the following facts should be kept in mind: Mastoid symptoms—redness, tenderness and even swelling over the process, developing in the early stages of an acute otitis media, that is before the rupture of the drum membrane, are very often observed, but they usually disappear promptly when the drainage of the tympanum has been established. The persistence of these symptoms, however, with no evidence of abatement, for several days after the drum membrane has been opened and rational treatment instituted, points strongly to the development of a mastoid abscess. The appearance of mastoid symptoms in the course of an acute otitis media after the ear has begun to discharge freely must be regarded with much greater suspicion than when these same symptoms develop before the opening of the drum membrane has taken place.

The persistence of even mild mastoid symptoms for several weeks after the ear has begun to drain freely is more significant than the presence of much more violent mastoid symptoms at the onset of an otitis media.

A complete absence of symptoms over the mastoid, even of tenderness on firm pressure, is possible in cases where an extensive abscess cavity has developed in the mastoid process. The reason is that in adults it is not uncommon for the outer shell of the mastoid to be very thick and firm, preventing any surface symptoms from a deep-seated abscess cavity. In these cases the diagnosis of a mastoid abscess can often be made from an examination of the external canal. The persistence of a profuse discharge for three or four weeks, with no evidence of abatement, should always be regarded with suspicion, provided the character of the discharge is distinctly purulent and not the more usual muco-purulent character. The development of a contraction in the fundus of the canal, and especially of a sagging of the

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upper posterior wall of the canal, has the same significance as the occurrence of an edematous swelling over the outer surface of the mastoid process.

The development of a mastoid abscess with destruction of the bone often bears a direct relation to the length of time allowed to elapse before the drainage of the ear is established. The symptom of pain is usually present to direct attention to the abscess in the middle ear, but it is not uncommon for pain to be absent while the undrained middle ear abscess is proceeding to the formation of a mastoid abscess. The failure to relieve a middle ear abscess is more likely to occur in children, who often will make no complaint unless the discomfort in the ear is quite marked. On the other hand, in adults the absence of pain in the ear not infrequently leads to the failure to have the ear examined and the drainage established before a mastoid softening has already begun. I have seen two such cases in adults recently, where, in the absence of pain, the sense of fullness and deafness in the ear was allowed to persist for more than a week before having the ear treated. In both cases a middle ear abscess was found, with an unruptured drum membrane and in both cases a mastoid abscess had later to be opened.

Transillumination of the mastoid in the cases of acute otitis media is often of distinct assistance in showing whether the mastoid cells are filled with pus, but it is of little value in making the much more important diagnosis between mastoiditis which can go on to spontaneous recovery, and the existence of a mastoid abscess which requires surgical aid. The x-ray plate may be of more assistance in making this diagnosis than the transillumination test. In a well-developed pneumatic mastoid process the roentgenogram will show distinctly when the cells are filled with pus and in some cases will give the much more important data of a breaking down of the bone and the formation of an abscess cavity.

Another perplexing problem that occasionally arises in the case of acute mastoid abscess is the persistence of trouble after the mastoid has been operated on. The trouble in these cases arises from the extension of the infection beyond the confines of the mastoid process, which accounts for the failure at the first operation to reach the infected area after a careful and painstaking effort has been made to perform a complete exenteration of the diseased process. In cases where the primary operation has been carefully done the focus which persists in causing trouble will be found around the upper part of the mastoid, since the removal of the mastoid tip is now a part of every complete mastoid operation.

The most frequent location for the extension of disease beyond the confines of the mastoid process is at the upper posterior angle. In some of these cases the trouble lies in an extension of infection much further forward into the root of the zygoma above and in front of the external meatus.

The recognition and proper treatment of thrombosis of the lateral sinus is of great importance, since this is the most frequent serious complication of acute otitis media. The clinical symptom of marked remission in the temperature is so characteristic that the diagnosis can often be made from this symptom alone when it occurs in connection with acute otitis media. Sinus thrombosis occurs quite frequently when there has been no evidence of a mastoid abscess or any clinical symptom of a mastoiditis. I have seen cases of sinus thrombosis where the evidence of an otitis media was limited to a slight congestion of the drum membrane. When exploring the lateral sinus in cases of suspected thrombosis and where there has been no mastoid abscess, a small peri-sinus collection of pus is occasionally found. In some of these cases the sinus may not be thrombosed at all and the case will go on to recovery after the pocket of pus has been drained. It is a good rule to aspirate the sinus in such cases and if blood is found to defer opening the sinus. If the sinus is found to be thrombosed it should be opened and if there is evidence of disintegration of the thrombus the removal of the thrombus should not be undertaken until the jugular vein has been ligated. The ligation of the jugular need not be undertaken in cases where a solid thrombus is found, with no evidence of softening. In these cases the sinus should be very freely exposed and opened in order to secure free drainage, but the removal of the entire clot is hardly advisable. On the other hand, when a septic broken-down thrombus is discovered it is usually best to secure a complete removal of the thrombus and free bleeding, especially from the upper end.

Note: Discussion of this and following papers on p. 217 et seq.

SYMPATHETIC OPHTHALMIA WITH REPORT OF CASE.*

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It is not my purpose to bring you anything new on the subject for which I have been announced. It is rather my purpose to reiterate old truths on a subject which is perennial because of its clinical interest and to lay a basis for discussion on a subject with which all have had more or less practical experience.

The mere mention of sympathetic ophthalmia brings before our minds a clinical picture. The picture is that of a post-traumatic irido-cyclitis following an injury, puncture or rupture of the tunica fibrosa causing a similar iridocyclitis in the fellow eye. The fact that a perforating serpiginous ulcer or a subconjunctival rupture of the sclera or a necrotic sarcomata may cause a sympathetic ophthalmia does not obtrude itself until we endeavor to explain the etiology of this disease.

The time limit within which the inflammation may manifest itself in the second, sympathizing or sympathogenic eye is according to clinical observation ten days to forty years. Practically we may consider the danger to exist from time of injury throughout remaining life. The maximum danger exists during the time when the iridocyclitis in the primary or injured eye is at its height vs. fourth to eighth week after injury.

The inflammation in the second eye is usually preceded by signs of sympathetic irritation,—photophobia, lachrymation, pain, weakness of accommodation,—which usually disappear once and forever when the primarily affected eye is removed.

When objective signs of inflammation are present in the second eye, whether added to or whether they make their appearance without the intervention of signs of sympathetic irritation, we consider sympathetic ophthalmia to be established.

What are these determining signs? In the beginning we may note the faintest blush upon the sclera in the immediate vicinity of the cornea indicative of a beginning engorgement of the circumcorneal vascular loops; Decemet's membrane is always sprinkled thickly or sparsely with fine deposits; there may be a few posterior synechiae, fine opacities may be detected in the vitreous and it is sometimes possible to distinguish an increased redness of the retina and optic nerve denoting a hyperemia of these structures.

Later the most intense signs of inflammation may prevail—pupillary membrane, annular or total posterior synechia with increase of tension, cyclitic membrane, softening, atrophy.

This is the picture which the appellation sympathetic ophthalmia brings before us.

But this picture is incomplete. Since 1905 we have been compelled to give this picture a pathological setting. The term sympathetic ophthalmia must now bring before us a clinical picture with an anatomical background.

I use an arbitrary date—1915—for in that year Fuchs published a paper in which he announced the conclusions that sympathetic ophthalmia was due to an iridocyclitis presenting a characteristic anatomical picture—a picture allowing it to be differentiated from other forms of chronic uveitis. The distinguishing characteristic of eyes capable of producing sympathetic ophthalmia is an infiltration of a peculiar kind of the uveal tissue itself, in contradistinction to an exudation on the free or vitreous surface of the coats of the eye characteristic of the ordinary forms of infection. He further concluded that the exudate regularly found on the free surface of the first eye did not belong to the picture of sympathetic ophthalmia but was the result of a mixed infection.

As described by Fuchs this characteristic infiltration consists of the accumulation of uninuclear leucocytes—lymphocytes—in the iris, ciliary body and chorioid. Early in the process this infiltration may be confined to limited areas, later the whole uvea is usually diffusely infiltrated and greatly thickened. In this infiltrated area are usually found local collections of epithelioid cells and giant cells are present in about half the cases. When giant cells are found lying between the epithelioid cells in these focal collections, nodules are formed bearing a close resemblance to tuberculoma. Indeed so close is this resemblance that Rippert when shown a specimen from sympathetic ophthalmia by Reis pronounced it tuberculosis.

This peculiar infiltration shows a marked tendency to spare the chorio-capillaris and is usually

*Read at the sixty-fifth annual meeting of the Illinois State Medical Society, at Springfield, May, 1915.

confined to the uvea, though the sclera may be invaded and its substance permeated with the scattered nodules. Extra ocular proliferation also occurs, the path of exit usually being along the chorioidal vessels.

This is the anatomical picture of sympathetic ophthalmia as described by Fuchs to which reference is made throughout the literature. I have already in this paper given him credit for the picture, knowing full well that all the pathological elements of it had been observed by previous authors and that previous to 1903 Schirmer upheld a specific anatomical picture in sympathetic ophthalmia.

Why then should credit be given to Professor Fuchs? Because he maintained that the clinical entity known as sympathetic ophthalmia depended upon a definite, recognizable pathological picture which permitted us to say of an enucleated injured eye—this eye produced or was surely capable of producing the clinical condition universally recognized as sympathetic ophthalmia and because he demonstrated by an unprecedented clinical test the correctness of this proposition.

True, acceptance of this proposition is not universal, legitimate grounds for negation exist, but those not accepting it are few and acceptance is refused more from theoretical than from clinical considerations. I venture to prognosticate that the proposition will be generally accepted on its face value until the etiology of sympathetic ophthalmia is definitely established.

In the test referred to, some 200 eyes were selected which had been enucleated during the previous 20 years for conditions which eventually might have produced sympathetic ophthalmia. The eyeballs selected included injuries, operations followed by inflammation, corneal ulcers with perforation and consequent iridocyclitis. Of 200 eyes thus selected, thirty-five showed a picture in common. Reference to histories showed that sympathetic ophthalmia had actually existed in the other eye in thirty-four of the thirty-five eyeballs selected.

In view of our present ignorance on many points regarding sympathetic ophthalmia such a clinical demonstration of a probable anatomical basis for the condition is of immense practical value whether accepted as proof of the fact or as only furnishing a working hypothesis.

Shortly after Fuchs published his paper reviewing the facts recorded above, Kitamura repeated a like experiment on a larger scale at the Breslau eye clinic and affirmed Fuchs' statements in toto.

The tendency of subsequent opinion is rather favorable to the contention that there is a specific type of infiltration preceding the condition sympathetic ophthalmia.

In as much, however, as the question cannot be regarded as definitely settled any well authenticated case may be of value to those striving for the solution of the problem as adding weight to one opinion or the other.

I may be pardoned, therefore, for here reporting a case of Dr. G. T. Jordan's bearing on the subject, the clinical course of which I was privileged to observe throughout and the pathological examination of which was intrusted to me.

Briefly the clinical history of the case is as follows:

Case of A. C.: Aged 38 years. June 6, 1912, while pounding a bolt with a hammer a piece of metal flew into the right eye. Patient was first seen within two hours after injury. Examination of injured right eye showed a wound extending horizontally across the cornea on a line corresponding with the junction of the upper third with the lower two-thirds. Hemorrhage, probably from the iris, had partially filled the anterior chamber with blood. The foreign body lodged in the vitreous cavity, penetrating the iris and leaving the lens partially opaque because of traumatism. A ragged tear in the iris above marked the line of penetration. View into the interior of the eye was blocked by the hemorrhage into the anterior chamber and opacity of the lens.

A piece of metal one-fourth by one-fifth of an inch was removed from the vitreous cavity by means of the magnet after enlarging the wound in the cornea a trifle. The delivery of the foreign body was attended by escape of vitreous and by additional hemorrhage.

The vision in the injured right eye before operation was reduced to light perception. After operation it was not perceptibly lessened. The vision in the uninjured left eye was 6/7.5.

He was under continuous treatment from Nov. 6, 1912, to Jan. 3, 1913, i. e. for a period of two months, at the end of which time the injured eye was quiet and apparently cured. The vision was as above recorded—O. D. light perception, O. S. 6/7.5.

During the following summer and autumn he was seen at irregular intervals. During all these months neither eye showed any signs of inflammatory reaction.

December 15, 1913, i. e., 18 months and 9 days after receiving the initial injury in the right eye, he presented himself with the signs and symptoms of an

acute iridocyclitis in the left eye. He gave a history of the eye becoming sore and inflamed five days previous. The onset was sudden, the pain had been considerable and the vision had become increasingly dim.

He was immediately placed in Wesley Hospital and on December 16, 1913, the right eye was enucleated on the assumption that the condition was one of sympathetic ophthalmia and on the further assumption that the removal of the primary eye would favorably influence the process in the second eye. In the hope that the process might be still further influenced he was given sodium salicylate during his stay in the hospital, viz., to Dec. 24, 1913. Atropin was used locally uninterruptedly and dionin to some extent. After leaving the hospital he was under continuous observation and treatment until July 22, 1914, or a period of seven months.

During this period the eye gradually quieted down but for some months was irritable. There would be days when the eye would feel uncomfortable and lachrymation would be free, causing its host some anxiety. Examination, in addition to the permanent changes to be described, would show mild engorgement of the circumcorneal loops of vessels.

Finally in July, the eye became entirely quiet—quiet but permanently damaged. Vision had been reduced from 6/7.5 to 6/30. With the aid of lenses (plus 50 combined with plus 50 ax. 90) the vision could be raised to 6/15ths. With plus 2.25 added for near J.3 could be read and newspaper print became legible. The explanation of this marked diminution in vision is to be found in the presence of a pupillary membrane.

Since then so far as vision goes, the eye has remained stationary. I will, therefore, describe its clinical characteristics as they appeared on Feb. 11, 1915, i. e., 37 months and 5 days after the initial injury to the right eye and 13 months and 26 days after first coming under observation with a fully developed case of sympathetic ophthalmia in the left eye.

On this date the eye appeared entirely quiet. The scleral conjunctiva is clear and there is no circumcorneal injection. Decemet's membrane is liberally sprinkled with pin point deposits of exudate. This sprinkling covers the posterior surface of the cornea throughout the greater part of its extent. Beginning on a level with the upper border of the pupil, it covers the inferior portion of the cornea quite uniformly, though the deposits are heavier below than above. Between the deposits the cornea is clear. The normal markings of the iris are clear and distinct. The pupil reacts but posterior synechiae interfere with the movement of the iris at a broad point above and at a point below in the nasal half. There is a broad, irregular band of pigment deposited on the lens capsule just inside the nasal and inferior borders of the pupil. The entire pupil is filled with a pupillary membrane. This membrane is thickest at the nasal border of the pupil where it forms a white crescent; toward the temporal border it thins out into a gray haze. Under atropine the pupil dilates in the temporal half. The nasal half dilates very irregularly and very little at that. There is a broad synechia above and another below and between these two there are several smaller synechiae so that in the nasal half of the pupil the annular synechia is all but complete.

The ophthalmoscope adds nothing to our picture for because of the pupillary membrane all details of the fundus are veiled.

Two and one-half months later, i. e. April 24, 1915, this picture remained the same with the important exception that the deposits on Decemet's membrane had been resorbed.

That the picture in the left eye was an iridocyclitis none can question, but was it an iridocyclitis sympathetica? The possibility of the original focus of infection lying elsewhere in the body than in the right eye remained even after its enucleation for there is no reason why a man might not suffer from an iridocyclitis traumatica in one eye and later from a luetic iridocyclitis in the second eye.

To rule out any such possibility the man was examined thoroughly by an internist and no physical defect was found which could be considered as causitive and the Wassermann was negative.

Clinically then we are justified in making the diagnosis sympathetic ophthalmia.

What pathology does the enucleated eye show? I will not weary you with a technical description of the enucleated eye or of its sections. I will simply enumerate the findings bearing on the topic under discussion and then show you the sections.

The changes of interest in this discussion lie in the uveal tract. Here we find an infiltration of the uveal tissues with uninuclear leucocytes. This is most marked in the ciliary region. The chorioid in the posterior division of the eye is comparatively free, the infiltration here being limited to small scattered nodes. The iris shows a similar nodular infiltration.

In the ciliary region the extensive infiltrate flattens somewhat the ciliary muscles. There is a limited infiltration into the muscle itself, but the striking infiltration lies central to the muscle and greatly thickens this region. Some of the sections show the pigmented layer of epithelium separated from the non-pigmented layer by infiltrate several layers (6 to 12) of cells thick. At some points the infiltrate has broken through the epithelium completely.

This infiltrate represents a multiplication of the fixed cells and an influx of wandering cells. Its greater bulk is composed of small lymphocytes and of plasma cells. The plasma cells are abundant and in many fields predominate over the more numerous lymphocytes; especially is this true of the region bordering on the epithelium. In the sections stained by Pappenheim's method these two types of cells are thrown in certain contrast.

Epithelioid cells can be detected with the oil immersion in all the sections studied. In many of them nests of epithelioid cells can be seen with low power.

A few cells are seen apparently undergoing division.

Giant cells are few. Those seen are of the Langerhans type. No micro-organisms are observed.

In addition to this infiltrative or proliferative uveitis there is an exudative uveitis of a fibrinoplastic type. The exudate is limited almost exclusively to the anterior half of the eye. It is most abundant in the immediate vicinity of the ciliary processes. There is some in the posterior chamber and some in the anterior chamber. The cellular content of this exudate is predominately round cells, though polymorphonuclear leucocytes are occasionally seen.

We note further that the chorioid is everywhere in situ; a small space, no doubt an artefact, separates the retina from the chorioid from the optic nerve to the ora serata. The retina shows no evidence of inflammation. The optic nerve is normal.

There remains to be mentioned one point of great clinical interest. During the sectioning of the eye the microtome knife was felt to grate against a harder substance than it should. Suspicion was immediately aroused that the steel had not been completely removed at the time of operation or that rust, which is not attracted by the magnet, had remained behind. The block was x-rayed and the rontgenogram showed a spicule of rust in the interior of the eye.

The question which immediately arises, but which cannot be answered is, would the sympathetic ophthalmia have developed had the rust been removed at the time of the primary operation?

To recapitulate briefly: We here have a case of sympathetic ophthalmia which clinically conforms to the classical picture of this condition and which pathologically shows a type of uveitis which accumulating evidence tends to show is part and parcel of a composite picture.

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NON-SUPPURATIVE SINUS DISEASE IN RELATION TO THE EYE.*

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In the past few years much has been learned regarding the sinuses and their relation to diseases of the eye; but until recently the importance of sinus disease has not received its just recognition. Such men as Uffenrode, Skillen and Brawley have done much to awaken ophthalmologists and rhinologists to this significant association, and the good work is being carried on by competent observers the world over, but much remains to be done.

It is not infrequent that one finds the ophthalmologist treating ocular symptoms which are due to some one or group of sinuses that surround the orbit, therefore, the importance of the co-operation of the ophthalmologist and rhinologist. All should be masters of the anatomical relations of the nasal sinuses to the orbit, and such knowledge can be gained only by study on the cadaver. Time will not permit my taking up the anatomical study of the relation of these areas, and if I did I believe nothing could be added to the information already given by Loeb, Sluder, Onodi and others. Orbital symptoms are most often due to disease of the frontal, ethmoid labryinth and sphenoid, and the antrum of Highmore occasionally.

We have two forms of non-suppurative sinus disease, the acute and chronic. The chronic form we may divide into the vacuum, chronic inflammatory type and the non-inflammatory type seen in the malignant and non-malignant disease. We will consider only the vacuum and chronic inflammatory types of the disease.

Heredity and congenital conditions may play some part in sinus disease, by the individual having inherited the small family nose; or congenetally by some malformation which interferes with proper aeration and drainage. In my observations the male sex are most often affected. Most

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cases are seen during middle life; however, a careful observer will sometimes find diseased sinuses in children. Occupation has some influence on sinus disease, especially with persons working in high degree of heat, in cold storage houses, dusty places, and those employed in handling certain chemicals which irritate the mucous membrane.

Any and all diseases such as anemia, diabetes, syphilis, tuberculosis, etc., will interfere with proper metabolism, which in turn will effect the mucous membrane, for as soon as proper material fails to be livered to the epithelium of the nose a change takes place in the tissues. This new made compound causes an irritation, congestion, tissue changes and obstruction to drainage. The importance of a systemic disease as a cause of sinus involvement has been impressed upon me recently by a case with a history of considerable post-nasal discharge of a clear mucous character. The patient was being treated for diabetes, having had about 1 per cent. sugar. A diet list was provided by his family physician, and after close adherence to it the post-nasal secretion ceased. As soon as he became careless with his diet the nasal condition returned.

Inhabitants of cities are more subject to sinus disease because of being housed; the dry temperature to which they are exposed has its deleterious effect upon the nasal mucous membrane. Trauma too has its effect by causing a change in the normal pathway of the air, and interference with proper drainage. Infectious fevers also involve the sinuses of the nose. The various microorganisms play an important rôle in sinus disease and according to Hajek they appear as follows in the relative frequency as the cause of sinus disease: Influenza bacillus, diplococcus pneumonia, staphylococcus pyogenes aureus and albus, streptococcus pyogenes, bacillus coli, pseudo diphtheria bacillus, bacillus pyocyaneus, bacillus friedlander and meningococcus intercellularis. The commonest of these being the staphylococcus and streptococcus. The portal of entry of these organisms is through the air current. Dr. D. B. Kyle tells us the primary invasion of the sinuses is very rare.

To possess a thorough knowledge of the various pathological changes of the mucous membrane of the sinuses one should know the histology of the lining membrane, so permit me to mention it briefly. The mucous membranes of all the sinuses are similar except that lining the ethmoid labyrinth, which is thinner. The epithelial covering is of the ciliated variety, similar to that found in the respiratory part of the nose. The subepithelial layer contains the blood-vessels and glands, and is so intimately connected with the periosteum one cannot find a dividing line.

The changes which take place in the mucous membrane of these cavities depend as Skillern tells us upon a number of conditions; the length of time the disease has progressed; virulence of germ or germs; the resisting powers toward the disease, and the favorable or unfavorable drainage conditions.

The non-suppurative type of disease is found but rarely in the antrum, frontal and sphenoidal sinuses owing to their poor system of drainage.

I believe most of the cases of the suppurative form of sinus disease, follow on the train of an acute infection; while in the chronic type there is a slow process of irritation going on, due to some one of the above causes, with a gradual congestion edema and round cell infiltration of the subepithelial spaces, which obstruct the normal openings. As time goes on and the issue changes are great enough to obstruct the normal ostea, there is an absorption of the oxygen and a vacuum occurs in the cavity or cavities obstructed. Owing to the changes which have already taken place, this vacuum form of irritation, increasing congestion and swelling, interferes with nutrition and an atrophy results which accounts for the absence of secretion.

We see the non-suppurative type of disease most often in the involvement of the ethmoid labyrinth. Dr. Otto Freer divides them into two forms, the superficial hyperplastic ethmoiditis, and the deep-seated hyperplastic ethmoiditis. The former he considers most common and its main feature is a polypoid hyperplasia of the mucous membrane over the middle turbinate and middle meatus around the hiatus semilunaris, the bony part being little if any involved. The latter form involving the ethmoid bone to varying degrees.

Dr. Jos. Beck, in the *Annals of Otology, Rhinology and Laryngology*, December, 1913, tells us he examined 140 histological specimens, especially in asthmatic cases, in which he finds bone changes are quite uniform, showing large areas of rare-

faction, while the tissue covering the bone shows pathologically considerable variation. There was in the non-suppurative sinusitis the marked absence of inflammatory elements, as round cell infiltration and the presence of inflammatory edema or myxomatous degeneration with loss of the glandular structures, and pathological characteristics of both suppurative and non-suppurative form are frequently met in the same case.

There is no one point in which rhinologists are so at variance, as they seem to be, regarding the formation of polyps, and time would not permit me to quote many authors' ideas on this subject. I believe, however, that polypi are due to the interference of the vascular system of a certain area, which is most often effected by bony changes in the ethmoid labyrinth.

To my mind the symptoms of this type of disease vary with the temperament of the individual, for in some cases we find but little change in the nose, yet the person complains of many symptoms; in other cases marked pathological disturbances will be present, while the patient will say he has absolutely no nasal disturbances, and will complain only of his throat, eyes or ears, which are secondary to the nasal condition. It has been my experience to find the non-suppurative form of sinus trouble more often in persons of a neurotic tendency.

The subjective symptom most often complained of is a severe headache, the location of which may vary, depending upon the sinus or sinuses involved. Pain due to the ethmoids usually occurs between the eyes or at the occiput; pain due to the frontal, usually occurs over the sinus involved or in the temple; pain due to the sphenoid, usually occurs at the occipital region, or top of the head; and pain due to the antrum usually occurs over the eye of the side involved, or in the temples. These headaches are so severe in some cases, that if one is not familiar with sinus conditions, he is liable to advise, and do, a resection of a nerve; such a procedure was followed in a case reported by Dr. P. Marquis. A frontal vacuum case which came under my observation last year, complained of very severe pains over the right side of the head, usually most severe when he arose in the morning, lasting variable lengths of time, but he was never quite free from them. When he stooped or stepped down from an incline the pain was more intense. On awakening in the morning he had great difficulty in opening his eye lids; it was necessary to bathe them in cold water for a half hour, afterwards the light was annoying for a considerable length of time; there was no trouble for the remainder of the day except a feeling of pressure that gave discomfort. The eye ball seemed sensitive to the touch. There was no temperature, no secretion to be found at any time, and the patient said his nose was dry. Blood count was made and found normal. An x-ray of the sinuses was taken and a shadow of the right frontal was shown. Application of cocaine to the nose gave him considerable relief, but the application of adrenaline chloride had absolutely no effect without the cocaine. I infracted the middle turbinate, curetted out the anterior ethmoids and opened into the frontal sinus, and to my surprise I found absolutely no secretion but the headaches disappeared. Other symptoms, complained of by patients, are watery discharge from the nose, especially if the ethmoids are involved, obstructed breathing cacosmia, anosmia, repeatedly catching colds, sneezing, and in an occasional case dizziness. The dizziness which some patients complain of, I believe is due to sensory impulses conveyed through the branches of the fifth nerve to Bechterew nucleus, where these impulses act upon the vestibular tracts.

The objective signs in vacuum sinuses, and early stages of chronic ethmoiditis are very obscure excepting for the finding of a middle turbinate hugging the orbital wall; while in the later stages of ethmoiditis we find pathological changes in the middle and superior meati. Where the middle turbinate hugs the orbital wall, infract the turbinate at its base to obtain a clear view of that area; to your surprise you will find various changes of the mucous membrane from a slight thickening to polyp formation, depending upon the length of time the condition has lasted.

A unilateral swelling with a dark ring under the eye should create a suspicion of sinus disease, as in a case recently seen by the writer, and which proved to be the result of a hyperplastic ethmoiditis. Since opening the cells the swelling has subsided and the dark pigment of the skin is practically gone.

I will not burden you with exhaustive details of case histories, wherein eye conditions are secondary to some sinus involvement, for I feel most

of you have seen like cases. I am frank to say that I believe that many conditions of the eye, and I might say over half of the cases I see, are due to some nasal disturbance, and most likely to the sinuses. I believe most of these conditions are not due to contiguity of the structures, as many observers would have us believe, but to nerve continuity, just as the blood follows the continuity of the blood vessels. The fifth nerve represents the sensory roots of all the motor cranial nerves from the third to the twelfth, inclusive, and in this way impulses are carried through the nerve trunks and in turn act upon the various portions of the eye. This organ is the point of least resistance, because it is in constant use the greater part of the 24 hours, and is a highly sensitive structure responding readily to slight impulses. To my mind the opthalmologist and rhinologist have much to learn regarding the characteristics of the fifth cranial nerve.

The diagnosis of the non-suppurative type of sinus disease is not difficult if one examines his case systematically and carefully. The difficulty, however, lies in the earlier stages of the disease, and is often overlooked. It required in some cases numerous examinations and a trained eye to differentiate between the appearance of a diseased and normal mucous membrane, where pus is absent. If I am unable to see the hiatus semilunaris and anterior ethmoid cells I infract the turbinate, if then unable by anterior rhinoscopy to detect a diseased condition, I use, if possible, a pharyngoscope, which in my hands has been of inestimable value, and especially for the examination of the posterior ethmoid and sphenoid. In some cases I have been able to diagnose a single diseased cell. While this procedure takes a little more time, it should be resorted to in certain obscure cases. A case seen some time ago had been having exacerbations of conjunctivitis; the ophthalmologist had examined the eyes and prescribed glasses, but the condition continued. On examining the nose I found the middle turbinate hugging the orbital wall, and could not see the hiatus semilunaris or bullae, so infracted the turbinate, the mucous membrane covering the outer side of the turbinate, uncinate process and surroundings showed a normal condition. In examining the posterior ethmoid region I was able with the pharyngoscope to see two ostea, one looked normal, the other showed edema which was local. A canula was then passed into the diseased cell and by compression with air produced an increase of the congestion and a feeling of pressure back of the eye. I then made an application of five per cent. silver nitrate into the cell and dilated the ostea; repeating this process at three different sittings, there was no return of the symptoms; it is now about four months since the last treatment.

Transillumination in my hands has been unreliable. The x-ray plate is of unquestionable value if taken by an expert roentgenologist and interpreted by a person experienced in reading x-ray plates, as the difference between the normal and diseased sinus is in some cases so light, the inexperienced will overlook important markings. The plates are of great value in making known to us the location and size of the cells and their relations to other structures, which is important if operative work is to be done.

In some cases the suction device by Brawley is of great assistance.

Many methods of treatment are advised for the relief of sinus disease, but a given case will depend upon the pathological conditions. Therapeutically little can be accomplished, unless the case is seen before marked changes take place, then local treatment and vaccine therapy may be of benefit.

Most cases are of the operative type, and many different methods of operating are advised, but the one I adhere most closely to is by Mosher of Boston; that of opening the agger nasi cell present in many cases; it is the most anterior of the ethmoid cells. Continue opening the cells from before backward on a level with the inner canthus of the eye to the sphenoid. I usually allow the middle turbinate to remain attached for a guide, and after the cells are opened remove it. If the turbinate is not of a balooning type, and showing considerable pathological changes it is best to leave it untouched. If diseased to a great extent, bite the membrane which holds it in place with a Myles' bitting forceps and snare it off at its posterior attachment rather than grab it with a forceps to tear it loose which to my mind is poor surgery. Having established free drainage from the ethmoid tract I usually put in a pledget of cotton saturated with about 2 per cent. iodine solution in water, and leave it in situ until the following day, when irrigations are used of nor-

mal saline; if granulations spring up they should be controlled by applications of silver nitrate, and if this proves ineffective they can be removed with a cutting forceps.

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THE BLIND SPOT.*

(A Preliminary Report.)

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In 1668 Marriotte described an area of blindness in the field of vision, known now as Marriotte's or the "Blind Spot." Anatomical investigations proved that this area corresponded to a projection of the entrance of the optic nerve into the eyeball onto the visual field. But little attention was paid to this interesting condition until 1869, when Leber reported the simultaneous enlargement of the blind spot and the presence of a central scotoma in nicotine amblyopia. The findings of several other investigators coincided with those of Leber, and Wildbrand and Sänger adopted these two abnormal findings as pathognomonic of nicotine and alcohol amblyopia. Later Schirmer, as well as Holth and several others, reported a similar condition occurring in iridocyclitis, particularly of the traumatic and sympathetic types.

In 1906, Cantonnet investigated the blind spot in myopia and found an enlargement coinciding (to a certain extent) with the myopic conus. Examination of the same cases several years later showed a progressive enlargement in the cases of malignant myopia alone. From these findings Cantonnet concluded that a progressive enlargement of the blind spot in myopes was significant of a poor prognosis and to an even greater extent if the enlargement was toward the center of fixation.

But the most practical application of the blind spot was made by Van der Hoeve in 1909 and 1910. He reported seven cases of sphenoiditis and posterior ethmoiditis with ocular disturbances with marked increase in the size of the blind spot for all colors. In a later report he mentioned this symptom in 54 out of 59 such cases; while in over 50 cases of nasal disturbances of various kinds the blind spot was enlarged but once. He, therefore, concluded that enlargement of the blind spot, with or without Uhthoff's muscle pain, in cases of nasal disturbance, was diagnostic of sphenoiditis, or posterior ethmoiditis, or both.

Before considering the clinical value of the blind spot it is necessary to speak briefly of its anatomical relations. Since the discovery of the fact that the blind area of the normal eye is due, not to an excessive proliferation of chorioid over the nerve head, as was formerly believed, but to a lack of the retinal elements, the backward course of the optic nerve fibres has been accurately plotted. We know that the fibres emanating from the retina immediately around the disc are found in the periphery of the optic nerve, conforming to the contour of the sheaths. This topography exists until the chiasm is reached.

Let us now briefly consider the relation of the orbital periosteum, the dura mater, and the optic nerve. The bony walls, separating the orbit from the accessory sinuses are thin and are almost honeycombed with perforating or diploic veins. This produces an intimate relationship between the periosteum covering both sides of the bony partitions. The orbital periosteum conforms to the shape of the orbit, forming a funnel with the apex in the optic foramen. As this latter passage-way is narrow and must transmit a number of isolated and insulated structures, an economy of space is necessary. To accomplish this, the intra-canalicular portion of the orbital periosteum blends with and becomes inseparable from the intra-canalicular portion of the dura mater. (The arachnoid and pia are also compressed and the intra-vaginal spaces nearly obliterated). Thus there exists an intimate relationship between the dura of the optic nerve and the periosteum of the accessory sinuses, via the diploic veins and the orbital periosteum.

For a complete understanding of this subject, a short description of the vascular supply of the optic nerve and its sheaths is necessary. The anterior 15 mm. of the nerve is under the influence of the central artery of the retina and its veins. Back of this for 10-15 mm., there is a stretch of nerve without any vessels except for a few capillaries, and surrounded by sheaths that contain but few vessels. From this point backwards (25-30 mm. back of the globe) the veins of the dura drain toward the center of the nerve. They gradually

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unite near the optic foramen to form the vena nervi optici centralis posterior, or as it is more commonly known, the central vein of Kuhnt and Vossius. This lies in the exact center of the nerve and eventually empties into the cavernous sinus. Surrounding the temporal side of this vein in a crescentic form, lies the papillo-macular bundle.

Keeping these three factors in mind, it is not difficult to comprehend the mechanism of optic nerve involvement of accessory sinus disease. There must be a direct extension of the inflammatory process from the sinus periosteum through the diploic veins, or lymph-channels, to the orbital periosteum and thence to the intra-canalicular portion of the dura. The process may be a simple edema, may be a toxemic, or a suppurative one. If the dura alone is involved and it becomes edematous or swollen, pressure is thereby made upon the periphery of the optic nerve, and the fibres leading from the retina around the disc suffer first: i. e., an enlargement of the blind spot occurs. If the process involves the veins, so that an edema surrounds the Kuhnt-Vossius vein, due to inflammatory changes, embolism, or what not, the papillomacular bundle is pressed upon and a central scotoma results.

This preamble of more or less well-known facts is merely to introduce a simple and accurate method of testing for enlargement of the blind spot. The apparatus consists essentially of a frame ½ meters square, tightly covered with any indifferent coarse paper. The patient sits comfortably at a table, with the head fixed by a chin-rest and with one eye covered. The direction of fixation is maintained by two points, one-half way between the patient and the screen, and the other a pencil mark on the screen. The testing point is a blued-steel ball bearing, 3 mm. in diameter and it is held on the anterior surface of the screen by a small electro-magnet behind the screen. The magnet is actuated by three or four dry cells. In actual use the ball is rolled over the screen in a horizontal line until it enters the blind area. This moment is signalled by the patient by means of a push-button lighting a small electric lamp, located outside of the patient's range of vision. As soon as the light flashes the location of the tip of the magnet is marked upon the posterior surface of the screen by a pencil mark. The process is repeated in other meridians until the outline of the blind area is completely mapped out. To record the size of the area the paper is laid upon a glass plate, divided into centimeter squares, and the exact size and location of the blind area noted. For preservation of this record the figures thus obtained are reduced to one-fifth and recorded upon millimeter square paper.

I have made measurements with the screen at all distances from 30 cm. to 2½ meters from the patient, and have found a constant distance of 60 cm. to be the most practical. The accompanying is an outline of a blind spot measured at this distance, both in the original size and reduced to the millimeter scale. The small outshoots at the upper and lower end of the figure are the projections of the retinal vessels as they leave the disc and cover the retinal perceiving apparatus in these areas. At greater distances the vessels can be even more accurately mapped out. The entire apparatus is extremely simple and can be constructed easily by anyone with a penchant for carpentry.

SYPHILIS OF THE INTERNAL EAR.*

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Probably a better title for this paper would be syphilis of the auditory apparatus of perception.

The perceptive apparatus may be grossly divided as follows:

1. The labyrinth (internal ear) which may be divided into the cochlea and semi-circular canals.

2. The auditory or eighth cranial nerve, which divides into the cochlear (which probably should be designated as the auditory), and the two vestibular branches (nerves of orientation).[1]

3. The cortical centers.

It is at times possible to locate a lesion as in one of the distinct divisions of the perceptive apparatus, however, in my experience this is not frequent, usually it is possible to go no farther than to say that the trouble is not located in (at least not limited to) the conductive apparatus.

Permit me in a few words to dispose of a number of important particulars upon each of which considerable time might be spent very advan-

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tageously but is precluded by the necessary brevity of a presentation of this type.

1. History: If it is possible to get a history of the initial sore it assists very greatly in the diagnosis; however, when this cannot be secured one may find something even in the remote past which is very suggestive. A few well directed questions are very important.

2. Concomitant Lesions: There is such a multiplicity of distinct local lesions caused by lues that two or more may coexist, for instance one may find aural and nasal syphilis coexistent. I have seen a patient with a luetic iritis and a perceptive apparatus lesion at the same time.

However, the labyrinthine lesion usually manifests itself when other local symptoms are not present.

3. Wassermann Test: A Wassermann should be made in all cases, if for no other reason than to complete the history. A blood Wassermann is usually sufficient; however, if it is negative, one should be made on spinal fluid. A positive blood Wassermann with a negative spinal fluid may coexist, and vice versa; from my analysis of Ellis and Swift's cases it seems that a positive blood reaction is much more apt to be present with a negative spinal fluid than vice versa.[2]

All other laboratory methods which may be of diagnostic value in syphilis are included under this heading.

4. Therapeutic Test: However objectionable may be this term, its importance should not be forgotten, as in my experience the prognosis as to hearing is reasonably good and results are seen rather soon if treatment is started early and is sufficiently energetic.

There are two distinct varieties of auditory syphilis, i. e., congenital and acquired.

CONGENITAL OR HEREDITARY.

It is not my purpose to consider this to any extent because acquired syphilis is of much more interest at this time.

Politzer says: "Those forms of severe hardness of hearing or total deafness which usually develop in both ears during childhood must be regarded as syphilitic affections of the labyrinth of a hereditary character."[3]

According to Hutchinson and Jackson the ears are affected in ten per cent of all children who have hereditary syphilis. Hermet and Baratoux give this proportion as one-third. Bezold considers either of these figures as considerably too high.[4]

Bezold states that this condition assumes third place among the causes of deaf-mutism (i. e. after meningitis and suppurative otitis media).[5]

Hereditary syphilis usually manifests itself during the first half of the first decade of life, and is much more frequent among females. The ear affection is rarely, if ever, the first manifestation of hereditary lues. Sudden deafness of high degree is usually the first manifestation of the ear affection; vertigo or tinnitus may precede the disturbance of hearing. The diagnosis is made by the presence of concomitant affections, as for example keratitis, iritis, or Hutchinson teeth, or from the family history. Treatment consists of treatment for the general disease; however, the results are usually not what could be desired, as the hearing is ordinarily lost.

ACQUIRED.

About the pathology of this condition very little is known, new formation of connective tissue and bone in all the spaces of the labyrinth has been observed, also swellings and lymphomata of the auditory nerve are described.[6]

Ellis and Swift state that it should not be considered an isolated disease of the organ of hearing, but merely a manifestation of that extremely serious condition, syphilis of the central nervous system.[7]

The men who early described this condition regarded it as purely labyrinthine, but it is now considered by most observers as a nerve lesion.

Wile and Stokes present a most interesting study of twenty-six cases of syphilis which came under their observation; sixteen were subjected to eighth nerve investigation (by R. Bishop Canfield). Of the sixteen cases eleven were positive and five negative, i. e. a percentage of 62.5. Of the eleven positives eight presented positive spinal fluid (Wassermann, etc.) and three were negative. Of the five cases presenting no involvement of the auditory apparatus three were positive and two negative, i. e. spinal fluid findings. They consider any involvement of the acoustic or orientation faculties as central nervous lesions.[8]

An effort is made by some authors to classify this condition into various types, but I am unable to see any necessity for this, neither am I able to devise a method of classification.

Acquired labyrinthine syphilis usually occurs in the tertiary or the secondary stage. Politzer reports a case occurring on the seventh day following the primary sore, but a labyrinthine lesion is certainly a rarity during the primary stage of lues.

There has recently been considerable discussion about labyrinthine manifestations of syphilis in the early period of the disease (i. e. primary and secondary stage), especially following the use of salvarsan. This feature will be considered more extensively under the head of treatment.

The lesion is usually bilateral but may be unilateral; it is, however, by no means uncommon to have an unequal involvement in the bilateral cases, in fact it is the rule.

Eighth nerve syphilis is more frequent among males than females.

In labyrinthine syphilis any or all of the symptoms which may be produced by a disease of the internal ear may be present, i. e. deafness, tinnitus, dizziness, and disturbed equilibrium; either one may be the only symptom complained of or any combination may exist.

Deafness is by far and wide the most frequently complained of symptom; it is usually of very sudden onset, rapidly becoming very marked from which time it is usually not progressive.

The subjective noises are very often intense and are very persistent; even after the deafness is complete the subjective noises may be very annoying.

Baranay reported a case with normal hearing, with a nystagmus toward the healthy side, in which the vestibular apparatus did not respond to caloric irritation, or when the body was rotated on its long axis. He attributed these symptoms to an isolated luetic affection of the vestibular apparatus.[9]

On inspection the membrana tympani may be found normal or the middle ear may be the seat of a very foul suppuration which may also be caused by the lues; this is rather infrequent, however. Or naturally this condition may be found in the presence of any other middle ear affection.

Given a patient complaining of deafness, the diagnosis is made by first localizing the lesion in the internal ear (which may usually be done when the Weber is lateralized to the better ear, the Schwabach shortened, and usually the Rinne negative, also the upper tone limit may be lowered); or given a patient complaining of a disturbance of equilibrium, or tinnitus, which may be localized in the labyrinth; especially if the symptoms have developed rather rapidly in a person giving a history of luetic infection or with some concomitant lesion, or with a positive Wassermann test, one is justified in making a diagnosis of syphilis of the perceptive apparatus. However, the above hearing tests would be altered if the lesion developed in the presence of some other ear affection.

Differentiation from otosclerosis is usually possible by the rapidity of the onset in lues, and the history of the case.

Definite localization in a distinct portion of the perceptive apparatus is by no means easy; however, with synchronous equal involvement of the cochlear and vestibular functions, especially if there be no involvement of other cranial nerves, one is justified in locating the lesion back (i. e. centrally) of the division of the eighth cranial nerve into its cochlear and vestibular branches (this would be practically a central nervous lesion); especially would this be true if the spinal fluid showed a positive Wassermann, positive Noguchi, and the cell count should be materially increased (which would indicate a meningitis). However, if there is unequal involvement of the cochlea and semicircular canals, the lesion must be located distal to the nerve division, and is probably a pathological change in the labyrinth proper.

Relative to the prognosis, most authors say it is poor; however, my experience has been that given an early diagnosis with energetic treatment, there is rapid improvement of the symptoms with a final result of nearly normal hearing; that is as complete a cure as may be expected in any of the late or nervous manifestations of syphilis. Ellis and Swift report several cases which they say "demonstrate how satisfactorily hearing may return if the diagnosis is promptly made and thorough treatment instituted before irreparable damage to the nervous tissue has resulted."[10]

Treatment: Most authors speak of local treatment, as for instance, instillation of a potassium iodide solution into the middle ear, massage back

of the ear with mercurial ointment, etc. In my opinion these procedures are worthless.

In recent cases Politzer, many years ago, advised the subcutaneous injection of a two per cent solution of pilocarpine hydrochloride in increasing doses four to twelve drops daily, this to be tried first, and if no marked benefit after eight to fourteen days he advised the use of mercury and potassium iodide.

Until the advent of salvarsan the use of inunctions (mercurial) seemed to be more favorably thought of than the iodides; however, I had very satisfactory results from large doses of potassium iodide, and its use seemed more logical in a tertiary lesion (which this usually is).

At the present time salvarsan seems to be the treatment of choice, especially combined with mercury and iodides.

Since the advent of salvarsan considerable interest has been aroused in eighth nerve syphilis because of the numerous reports of labyrinthine involvement early in the disease, especially following the administration of 606, and some observers have thought that in some way the salvarsan was responsible for, or at least precipitated the affection. After a careful review of this condition, Prof. Alexander of Vienna believes:

1. That, when acute or chronic disease of the auditory nerve or labyrinth is present in the early stages of syphilis, whether the auditory nerve lesion be syphilitic or non-syphilitic, salvarsan is a dangerous drug and should not be administered.

2. That in the tertiary stage of syphilis or chronic or latent syphilis, the occurrence of an acute affection of the auditory nerve should be regarded as a contra-indication to the use of salvarsan.

3. On the other hand, there are a large number of cases of chronic syphilitic involvement of the auditory nerve and chronic labyrinthitis complicating chronic syphilis in which he regards salvarsan as a safe and valuable remedy.[11]

Ehrlich's explanation of this is that they are due to the administration of salvarsan in insufficient doses, i. e. doses which have been large enough to control the general manifestations of the disease, but which have failed to devitalize certain isolated groups of spirochaetae in the cranial nerve sheaths; and that the activity of these neglected spirochaetae gives rise to a perineuritis.[12]

The opinion of Ehrlich is accepted by most observers; to support these views Benaire presents the following facts:

1. The long interval frequently intervening between the injection of salvarsan and the manifestation of cranial-nerve involvement.

2. The nature of the pathological process itself, which, as is particularly evident in the lesions of the optic nerve, exhibits the characteristic features of an irritative or inflammatory lesion (Schantz, Tobias), rather than those of nerve atrophy, which is the lesion usually observed as a result of poisoning by other arsenical preparations.

3. That the disease (that is nerve lesion) occurs almost exclusively during a fixed period of the disease.

4. That, so far as it is yet known, such nerve lesions are not observed in diseases non-syphilitic in origin, following treatment by salvarsan.

5. The curability of such nerve lesions by anti-syphilitic remedies, and particularly by salvarsan injections.

6. That such nerve lesions have usually followed the administration of small doses of salvarsan.

7. That exactly the same manifestations have occurred under treatment by mercury.[13]

An ideal treatment in my opinion for labyrinthine syphilis would be frequent intravenous injections of salvarsan followed by inunctions of mercury, which (course of salvarsan and mercury) is to be repeated if the Wassermann remains or becomes positive."

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FOREIGN BODIES IN THE RESPIRATORY TRACT.*

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In considering the subject of foreign bodies in the air passages, the writer will only attempt to give some of the phases that have occurred in his own experience citing briefly a few illustrative cases in regard to the symptomatology, diagnosis and treatment of the condition.

In as much as the majority of these accidents occur in very young children, a definite history is often unobtainable. When a history is secured it is usually stated that some foreign substance has been swallowed. No distinction is made between the act of deglutition and that of inhalation or aspiration. In older children, fear of parental reproval will often cause them to conceal the fact of the accident. A false sense of security may be induced also by the fact that after the initial attack of choking or strangulation, the symptoms may subside and clinical evidence of the effects of the foreign body may not be apparent until some time afterward.

The pressure upon the trachea of a large foreign body in the esophagus may cause respiratory distress and result in some confusion in diagnosis. An illustration of this may be found in the following case:

Four months previously a child 2 years of age had swallowed some beads, all of which were thought to have been recovered. Following the accident an attack of bronchitis came on. The respiratory symptoms such as coughing, dyspnea and wheezing had been more or less constant. There was some slight difficulty in swallowing bread, a fact that was elicited later. Owing to the preponderance of the respiratory symptoms and with the history of an accident, the presence of a foreign body in the trachea was suspected. A roentgenogram, however, showed a large oval object about the level of the sternal notch. A glance at the picture showed the improbability of an object of the size shown to be resting in a small trachea and accordingly the diagnosis of a foreign body in the esophagus was made. By esophagoscopy an irregular oval part of a large pearl button was removed. Recovery was uneventful with a cessation of the respiratory symptoms within three or four days.

Suggestive of the presence of a foreign body in the bronchial tract, especially in children, are various pulmonary conditions where the etiological factors are obscure. Among these may be mentioned localized bronchitis, chronic pneumonia, bronchiectasis or abscess. In a number of such cases that I have seen, the diagnosis has been cleared up after the lapse of several months or years only when a roentgenogram has been made.

A foreign body entering the respiratory tract may lodge either in the larynx, trachea or some part of the bronchial tree. Anything large enough to cause complete obstruction to the glottis will cause death immediately unless help is at hand. In other instances, depending upon the size and position of the object, we may have hoarseness or even complete aphonia if it is between the vocal cords. Cyanosis, cough, pain or dyspnea may vary to a considerable degree. The symptoms from being due to mechanical causes in the beginning may gradually increase in severity owing to increasing inflammatory reaction. In a certain number of cases the larynx is very tolerant to the presence of extraneous substances. I recall a patient with an eyelet imbedded in the larynx for two and a half years. Very little discomfort was complained of except for the condition of hoarseness.

A region of the respiratory tract which is especially subject to the irritation of foreign substances is the subglottic area. An object passing over or lodging in this space may cause swelling or edema which may rapidly become grave. The same condition may be produced by a small foreign body which has passed below this area, but which moves up and down with the respiratory current and which by its impact against the lateral subglottic space, causes an edema. The symptoms produced by this subglottic edema are the same as those found in what is commonly called croup.

When the foreign body is situated either in the larynx or trachea, we find that while the amount of air entering the lung is diminished it is about equal on each side. However, an exception is found occasionally. Recently a child 22 months of age came under my notice. Two days before she had been playing with some coffee beans, the total number of which the mother was sure did not exceed three. The child was seized with a choking attack whereupon the mother introduced her finger into the baby's

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mouth and recovered the three beans. Since the accident the breathing had been difficult and the child could not rest. When I first saw her the obstruction to breathing was very marked with retraction of all parts of the chest with each inspiratory effort. The stridor could be heard at quite a distance. At first glance it seemed reasonable to expect that the obstruction, whatever its nature, was subglottic. On examination of the chest, air in diminished quantity was found entering both sides of the chest, but to a considerable extent less on the left than on the opposite side. Upper bronchoscopy without anesthesia disclosed a coffee bean resting on the bifurcation, its larger part being over the entrance to the left bronchus, the remaining portion causing the obstruction on the opposite side.

When a foreign body is located in a bronchus the dyspnea will vary according to its size and the tissue changes produced by it. A small object in a bronchus not sufficient to cause obstruction will not produce dyspnea and for the time being very little cough. As the irritation increases the clinical signs will become more manifest.

For the diagnosis of a foreign body in the bronchial tract, we depend upon the physical findings in the chest and the roentgenogram. If a foreign body is of sufficient size to either partially or completely obstruct a main bronchus before any branches are given off, we will find a corresponding diminution or absence of the respiratory sounds over that entire side. If the object is located below the upper lobe branch we will find air entering the unaffected portion. Of course, this applies to recent cases, since in old cases the infection resulting from the presence of extraneous substances in the lung will sooner or later extend to the entire lung and even produce changes on the opposite side.

The roentgenographic examination is an extremely valuable aid, both for the determination of the presence and the localization of the foreign body. Unfortunately many objects will not produce a shadow on the plate. This applies particularly to kernels of grain or peanuts, beans and seeds. However, I have had one case, that of a watermelon seed in the right bronchus, in which the shadow was accurately delineated. Metallic objects practically always are sharply defined. The only exception I have met with was in a patient who had been wearing an aluminum tracheotomy tube. This had broken off at the collar. An unsuccessful attempt at removal had been made. When she entered the hospital a roentgenogram was made which was negative. Bronchoscopic examination disclosed the tube in the right bronchus from which it was removed with some difficulty on account of its curve. The shadow cast on a plate from an enlarged or calcified bronchial gland may lead to confusion in suspected cases of foreign bodies. In doubtful or suspected cases a bronchoscopic examination should be made. Failure to find a foreign body does not necessarily exclude the possibility of its presence. There is a limit to the size of the tube that may be employed in searching the divisions of the bronchi in infants and young children. A small object may be easily hidden in a secondary bronchus, and may be coughed out after the examination. It must not be forgotten that foreign bodies may have been present long enough to produce subglottic or pulmonary symptoms before being coughed out. The presence of an excessive amount of secretion or pus may also hide a foreign body. All these conditions add to the uncertainty of bronchoscopic work.

The changes produced in the lung and the severity of the same will vary perhaps with different individuals and with the size and nature of the aspirated object. In some patients a rapidly progressing pneumonia is present. In others there may simply be a localized bronchitis. Where metallic substances have been present for a long time, the changes produced are fairly constant and characteristic. The irritation of the bronchical mucous membrane leads at first to granulation tissue formation which in course of time becomes organized into connective tissue with subsequent contraction. This produces a stricture below which we have primarily a dilatation of the bronchus. This becomes infected and granulation tissue forms with breaking down of the bronchial wall. The bronchiectatic process extends to other divisions and may subsequently terminate in a definite lung abscess.

Little has been written as to the progress of patients after the foreign body has been removed in these chronic cases. Naturally the prognosis is better if the offending object is out but the mere success of removal does not end the chapter. A stricture of the bronchus still remains a

stricture after the primary cause is removed. A cavity persists and unless it can be drained it will continue to cause trouble. For this reason these patients must be kept under observation. When possible, periodic dilatation may be carried out or the question of thoracic drainage must be considered if the cavity is of considerable size.

In regard to the treatment, it may be stated that blind attempts at removal of foreign bodies in the larynx or through a tracheal opening if in a bronchus, are inexcusable. So much better work can be done under direct vision that only those who are unacquainted with modern progress will attempt to work in the dark. The damage that may be done may be sufficient to preclude any chance of recovery that the patient may have had before the operation. When bronchoscopic methods are used the precautions must be equally great. All manipulations must be done as delicately as possible and under direct vision. If the foreign body is in the larynx the use of a tube is unnecessary as the direct speculum will give a wider exposure and a broader field for instrumentation. The direct speculum is indispensable as an aid to the passage of the bronchoscope especially in children. For proper work, one should have trained assistants and an armamentarium sufficient to meet any necessity that may arise. Anesthesia, either general or local, should be avoided when practicable, especially in children. Both add an unnecessary danger to the patient. If marked subglottic edema is present the dyspnea may be relieved for a time by the passage of the bronchoscope but it is almost sure to return. One must be ready to perform intubation or tracheotomy without delay. When possible the former is preferable, but I have seen several cases in which it was impossible for me to introduce an intubation tube.

Whether upper bronchoscopy or lower bronchoscopy should be done is largely a question of the skill of the individual operator. Other than in exceptional cases the upper method should be employed. If much dyspnea is present it may be necessary to open the trachea immediately. A tracheotomy, however, may add another danger and complications to recovery. From the standpoint of technic, practically the only danger in the upper method is the use of an oversized tube with its forcible passage through the larynx and subglottic area. Edema is almost sure to follow. Infancy or youth is not a contraindication to the upper method. My youngest patient was an infant three months of age in which upper bronchoscopy was performed for the removal of a small safety pin. Jackson is a strong believer in the upper route and has stated that "everyone should battle strongly against the advocacy of tracheotomy for all bronchoscopies under two years—an advocacy that was originally based upon early instruments and technic which later developments have rendered obsolete, but which threatened to persist by tradition."

The actual removal of a foreign body may present considerable difficulty. Soft substances such as the kernel of a peanut may crush in the grasp of the forceps. The kernels of grains may swell so as to obstruct completely the lumen of a bronchus, rendering it difficult to pass the forceps between the bronchial wall and the foreign body. In the old cases in which are usually found metallic objects, such as tacks, nails or pins, the narrowing of the bronchus with the constant outpouring of pus through the stricture will require infinite patience in removing the secretion before a view of the field can be obtained. By the time a clean field is secured the patient as well as the operator may be exhausted. It may be impossible to pass even the smallest tube through the stricture and if a forceps is introduced into the cavity and the foreign body fortunately found and grasped, considerable damage may be done if the object is a tack or nail, by tearing or perforating the bronchus. If the latter accident happen, a pyo-thorax is almost certain to result with consequent grave danger to the recovery of the patient.

In the past two years Dr. E. Fletcher Ingals and I have operated on several cases by means of roentgenoscopic bronchoscopy. In the hands of one familiar with bronchoscopy, the anatomy of the bronchial tract, and the pathological conditions found in the chronic cases, it seems to me that this method should prove safe. For one inexperienced or unfamiliar with the above factors, this procedure would be extremely dangerous. The exact status of the method remains for future determination.

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FOCAL INFECTIONS WITH ESPECIAL REFERENCE TO THE TONSIL.*

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The interest in the lymphoid tissues of the pharynx, and particularly that portion known as the faucial tonsil, has recently been revived in connection with the study of focal infections.

Studies in comparative anatomy show that the faucial tonsil becomes more complex in its structure as it is traced from reptiles up to man and that therefore it cannot be considered a vestigial organ, but one with a definite function. To discover this function much elaborate research work has been undertaken, which in certain instances has apparently resulted in diametrically opposite findings. Piera reports results showing that live bacteria are more rapidly absorbed into the tonsil tissue than various inert pigments, and Lexer[1] applied virulent cultures of various organisms to the surface of dog's tonsils and produced fatal results with streptococci. On the contrary, Jonathan Wright found that when he filled the tonsil crypts with a mixture of live bacteria and carmine powder and in fifteen minutes enucleated the tonsils, the carmine was within the epithelial layer but no bacteria. Wright explains that the viscosity of the organisms prevents their passage through the crypt epithelium and that also in practically normal tonsils a bacteriolytic ferment is secreted by this epithelium which either destroys the invading organisms or minimizes their virulence, indicating that one of its functions may be protective.

It is probable also that this protective function is most active up to the age of puberty. In further support of the tonsil as a protective organism is the observation of Jacobi that when a diphtheria membrane is confined to the tonsil the general reaction and local glandular swelling are slight. Stöhr, Brieger, Goerke and others claim to have demonstrated an outward lymph stream through the tonsils, which carries with it many lymphocytes and prevents an influx of bacteria. This finding is one of the few points generally agreed upon by investigators. Barnes[2] believes that this great production of lymphocytes is for the blood, as few escape into the crypts and he therefore considers the function of the tonsil to be hæmopoietic.

Persistent efforts to discover an internal secretion in the tonsil by Caldera and others have been negative and, at the most, we may say that if such a secretion exists it must be in common with the other groups of histologically similar lymphoid tissue throughout the respiratory and alimentary tracts. Again, in spite of all the thousands of tonsillectomies of recent years, no one has shown bad results due to the loss of any theoretical tonsil function.

The most recent work on the physiology has been done by Henke[3] and Amersbach.[4] Henke claims that his experiments prove that tonsil infections are of endogenous origin, being carried to the tonsils by many of the lymphatics of the mouth and nose. The experiments, briefly, consisted of injecting suspensions of india ink particles into the tissues of the nose and mouth and recovering them from the tonsils later, confirming previous work by von Lénart. The particles were found only in certain of the serial sections of the tonsils, however. Amersbach very carefully repeated these experiments, using on man colloidal iron known as electromartiol, and on animals chiefly cinnabar. In no instance in man could the suspended particles injected into the tissues of nose and mouth be found in the enucleated tonsils. In three of fourteen cases such particles were thought to have reached the tonsils of dogs. These supposed particles Amersbach later showed to be air bubbles and particles of condensed moisture due to an error of technic in preparing the sections. This clearly explains Henke's observation that only certain sections showed the particles. Amersbach had no difficulty, however, in demonstrating the particles in large numbers macroscopically in the submaxillary lymph glands of dogs, though never in the tonsils.

The mechanical function of the tonsil has been dealt with at length by Faulkner in his book, The Tonsil and the Voice, 1913. After reading his many excerpts from the literature, however, one cannot help but think that he has used only those statements which seem to prove his case. Doubtless he is right when he says that the

*Presented before the Eye, Ear, Nose and Throat Section of the Illinois State Medical Society, Springfield, May, 1915.

1. Archiv. f. Klin. Chirurgie, Bd. 84.
2. The Tonsil, 1914.
3. Archiv. of Laryngologie, Bd. 28, Heft 2, S. 231, 1914.
4. Archiv. of Laryngologie, Bd. 29, Heft 1, S. 59, 1914.

tonsil is an important factor in voice production, acting as a moveable, compressible fulcrum over which the pharyngeal muscles may play in their myriad combinations of position for modulating tone. Faulkner quotes one eminent singing master, Lamperti, as saying that in fifty years of teaching he has found that every case of removal of the tonsils has seriously injured the voice. Such testimony, and it is not unique, should warn us to be cautious in operating upon singers and to have a clear understanding with them as to possible harm resulting.

We come now to a consideration of the experimental work of two Chicago investigators, Rosenow and Davis, who have shown us the tonsil as a menace.

Davis[5] reports the presence in 30 of 122 tonsils in children of actinomyces-like granules which contain cocci of the streptococcus group, spirilla, bacilli, and filaments. The cocci are of low virulence, but produce arthritis in animals when injected intravenously in large amounts. The bacilli and the filaments are considered to be different forms of the same organism, Bacillus fusiformis. It has not been proven that these organisms are pathogenic for man, but if not producing focal infections they still serve as a nidus, which might produce Vincent's angina or noma, as they lie in areas inaccessible to the cleansing solutions used in the mouth. The appearance of tonsils is no guide. They may be submerged and natural drainage so interfered with. Partially removed tonsils are particularly harmful, as fibrous tissue forms at the cut surface and occludes the crypts.

Davis[6] has studied many forms of streptococci from tonsils and finds them all in varying degree capable of producing arthritis in animals within two or three days after intravenous injections. Davis has recovered streptococci from the infected joints, but they tend to disappear rapidly. In 10 per cent of all animals injected an endocarditis results.

Jackson[7] has found in animals so treated, focal lesions in the heart muscle consisting of round cells, and in the older lesions large giant cells and also cocci, especially soon after the injections. Davis has found that many cases are improved by vaccines, but some are made worse and some are very susceptible even to small doses.

It has been noted that ulcers of the stomach and small intestines are more frequent in regions where infections of the throat are prevalent and that ulcers already present undergo exacerbations during acute throat infections. It has, however, remained for Rosenow of the Memorial Institute for Infectious Diseases, Chicago, to prove these theories by a series of animal experiments. Pneumococci isolated from the blood of pneumonia patients were transformed into hemolytic streptococci by passage through a number of animals. They were then found to produce gastric and duodenal ulcers, cholecystitis, nephritis, myositis, arthritis and appendicitis. These pathological processes were caused chiefly by certain strains of streptococci, slightly more virulent than those found in rheumatism, but rarely of a high degree of virulence. Many of the strains in these experiments were secured from the infected human tonsils, and it is reasonable to suppose that similar infections may occur in man from streptococci.

Rosenow has further elaborated these experiments in an essay presented before the Section on the Practice of Medicine of the A. M. A., June, 1914. He found that streptococci isolated from cases of rheumatism when injected intravenously, commonly produced arthritis, and that strains isolated from the gall bladder commonly produced cholecystitis and the same relation held good in the case of gastric ulcer and with the bacillus of erythema nodosum which on animal passage became a streptococcus with an affinity for joints, fascia, muscles and endocardium.

In arthritis deformans Rosenow isolated various organisms from the lymph glands near the affected joints while cultures from the blood and joint exudate remained sterile. The type of streptococcus thus isolated resembled streptococcus viridans, though differing from those found in the tonsils in that they were of low grade virulence and anaerobic.

With the result of these various investigations before us we will, I think agree that only diseased tonsils should be removed and that every possible means at our command should be used to recognize pathological conditions in the tonsil. In addition to sacrificing a functionating organ, we must remember that the operation is not without

5. Jour. Infectious Diseases, XIV, 1, 144-153.
6. Ill. Med. Jour., September, 1914.
7. Jour. Infectious Diseases, 1913, XI, 343.

its dangers; also, that operative shock as Crile tells us, is an important consideration.

It may be that, considering the tonsil to be an organ of slight importance, many have been needlessly removed. It has been considered a simple operation which every one may safely perform, and I will agree that every surgeon who will take the trouble to develop his technic as the specialist has done, should be able to properly enucleate tonsils. But a safe, accurate operation, properly conserving all tissues not tonsillar in character, cannot be developed without study. The day of the operation which removes the exposed portion of the tonsil and digs for the rest with punch forceps should be over. There is, however, quite as much criticism due those who allow their patients to suffer from the far-reaching general effects of toxin absorption, recurring tonsillitis and peritonsillar abscess with ear complications because of their alleged conservatism.

In making our diagnosis we will start with Faulkner's definition of a normal tonsil. This he states, is "a tonsil which lies between the anterior and posterior palatine arches in healthy condition and of such size as not to project beyond the lines of the palatine arches and so small as not to interfere with the perfect anatomical outlines of the walls of the pharynx."

By deep pressure against the tonsil at its base and over the velar lobe with a blunt right angle hook the presence of infectious material may be detected and specimens obtained for cultural studies. The absence of such material, however, does not mean that the tonsil is free from disease. Many tonsils studied after removal have shown walled off crypts, often containing pure cultures of streptococci, and probably resulting from former inflammatory processes. A deep red color to tonsil and pillars, showing a low grade chronic inflammation is of value. Palpable anterior cervical lymph glands indicate that toxins are being absorbed from nose, mouth or pharynx and by eliminating the other possible sources may aid in incriminating the tonsils.

The history of attacks of tonsillitis is not particularly valuable, as attacks of sore throat are easily forgotten and serious tonsil disease has repeatedly been found in the absence of any such history. Where general evidence of a focal infection is present all possible sources should be studied. The teeth, nasal accessory sinuses, gastro-intestinal tract, including especially the gall-tract and appendix, the urinary bladder and prostate, isolated enlarged glands, a possible pyelitis, etc., should be carefully studied and eliminated before condemning the tonsils. If, however, no other probable focal area is found or treatment of such area has been unsuccessful the tonsils should be promptly and properly enucleated. Close co-operation with the internist and pathologist is essential.

The enlarged but apparently non-infected tonsil in children, who easily "take cold," have a reflex cough, or cannot be brought up to par by proper diet and hygienic measures, should be removed, especially if previous removal of the pharyngeal tonsil has been of little benefit.

In St. Luke's Hospital, Chicago, histological examination of all tonsils removed shows three per cent to be tubercular. The great majority of these tonsils came from children and in no case has the tubercular process been suspected before operation.

It is not reasonable to expect miracles to follow tonsil removal in cases of arthritis particularly, as joint metasteses have occurred and may therefore delay or minimize cure. This fact makes it the more necessary to take advantage of the opportunity to obtain vaccines from the enucleated tonsils for the future treatment of the case.

The following case reports give practical application of our studies of the tonsil:

Case 1: E. H. M., aged 50 years, October 6, 1911. Sore throat periodically and cheesy masses from tonsils noted; mixed infection, pneumococci, staphylococci, unidentified bacilli. Trichloracetic acid was applied to the tonsil crypts July 10, 1914, with relief from soreness and caseous masses.

July 21, reported pain in hands with swelling of carpal and metacarpal joints.

September 22, still much discharge from the crypts on pressure.

October 17, 1915, tonsils enucleated and painful reaction followed. Dr. Moody, St. Luke's Hospital, reported large pseudoray fungi in crypts.

This patient suffered from exophthalmic goiter and had been examined and treated thoroughly for this and metabolic disturbances without relief from the arthritis. The thyroid was enlarged and soft; pulse 120; blood pressure 160, systolic; stomach showed hyperchlorhydria with total acid 76; urine showed marked acidosis. Complete relief from arthritis.

Case 2. Miss E. J., aged 53 years. Complained of tinnitus, worse upon exertion. There was mild tubal inflammation which yielded readily to catherization, without, however, relieving the tinnitus.

March 13, 1908, severe acute tonsillitis and pharyngitis. Was examined thoroughly and diet, elimination, etc., ordered. The tinnitus promptly ceased. Had several tonsil infections and treatment of crypts was of little avail.

April 13, 1912, toxic pains in throat, joints of hands swollen. Tonsil exudate showed many pneumococci and unidentified bacilli.

June 25, 1914, the very small tonsils were enucleated and showed pure culture of hemolytic streptococci. A vaccine was made and 12 injections given. All pain from the arthritis ceased within five days after operation and the joint enlargement disappeared gradually in about 3 to 4 weeks.

May 6, 1915, patient reported normal health and that one metacarpal joint remained tender until within the past two months.

The details of the general examination follow:

Miss E. J. Examined in August, 1911. At that time she showed normal physical findings. The blood showed a picture of distinct secondary anemia. The stomach showed subacidity, the total acid measuring 30, mucus in excess, but otherwise normal. The later analyses of the stomach showed normal findings. The blood increased to normal and her weight improved but the joint disturbances continued and because of that she had her tonsils taken care of.

Case 3. P. V. C., aged 60 years. History of many throat infections for which local treatments were given. Has peculiar hacking cough; swollen anterior cervical lymph glands on right side, painful; pain along second division of fifth nerve. Left tonsil showed small abscess in the velar lobe. Smear showed mixed infection chiefly encapsulated diplococci.

December 1, 1914, tonsils were enucleated and autogenous vaccine prepared at St. Luke's Hospital.

Dec. 14, wounds healed and all above symptoms had ceased. Ten doses of vaccine were given and it was noted that her former lumbago had disappeared also. Dr. Moody's report showed hemolytic streptococcus, streptococcus viridans and large amounts of retained epithelium in cyst-like dilated crypts and small abscesses. This patient had been exhaustively examined and other sources of focal infection ruled out.

Examined first in May, 1914. She showed slight dullness over the right apex but no rales. The rest of the physical findings were negative. The blood pressure measured 120 systolic and 100 diastolic. An x-ray examination of her chest showed some dullness over the right apex, but no evidence of active involvement. The colon showed a highly spastic condition, but the stomach was entirely negative in the bismuth study. The stool showed mucus and fermentation in excess and a large amount of undigested food detritus. The urine showed a high acid and great indican excess. Under treatment the patient became more comfortable and improved, but her bowel still remains stubborn and needs encouragement from time to time. She is now under mechanical measures to help get her colon into better condition. Her later urine analyses showed a distinct improvement over the earlier ones and were practically normal.

Case 4. J. T., aged 10 years. Adenoids and hypertrophied tonsils but no exudate on deep pressure. Anterior cervical adenopathy. Tonsils were enucleated December 28, 1914, and Dr. Moody reported hyperplasia of the lymphoid tissue and small abscesses in several crypts. This case, while showing no general manifestations of focal infection, illustrates the possibility of overlooking the tonsil infection as no secretion could be expressed from the crypts. The child has taken on weight, is free from colds, has better appetite and is better in every way especially in his school work.

Case 5. P. B., aged 20 years. Seen August 5, 1914., because of swollen anterior cervical lymph glands which had been noted for two months. Iodine treatment had previously been used without result. Present condition followed a severe tonsillitis which he has frequently experienced. Smear from exudate expressed from tonsils showed a mixed infection, chiefly streptococci and no tubercle bacilli.

Tonsils were enucleated August 2, 1914, and unfortunately only a histologic examination was made, which showed increased connective tissue.

January 16, 1915, the cervical lymph glands were removed as the tonsil operation had no effect upon their gradual enlargement. Dr. Moody reports tuberculous lymphadenitis. No arthritis. Great gain in weight, blood nearly normal and feels well.

Case 6. M. J. A., aged 40 years. Has had many nasal sinus and ear infections and several attacks of tonsillitis. Thorough investigation and treatment of the general condition were beneficial, but did not relieve the arthritis and myositis.

The general findings were as follows.

Eczema about the ears and axillae; blood pressure 130 systolic, 100 diastolic; stomach subacidity, total acid 28 with reduced amount of ferments; stool showed large amount of undigested meat fibers; increased bacteria and fermentation; secondary anemia.

Sept. 22, 1914. Smears from expressed tonsil exudate showed encapsulated diplococci singly and in short chains, and staphylococci.

Oct. 27, 1914. Culture showed pneumococci.

Dec. 5, 1914. Muscles of right side of throat swollen and painful swelling of ankles.

Dec. 31, 1914. Tonsils enucleated. Dr. Moody reports marked increase in connective tissue; on culture hemolytic streptococci 20, streptococcus viridans 1. An autogenous vaccine was made and 12 doses given.

Jan. 27, 1915. All myositis and arthritis had entirely disappeared.

Case 7. J. E. P., aged 42 years. July 5, 1911, complained of difficulty of hearing but all tests normal except some shortening of hearing time for the 1024 and 2048 forks. Eustachian tubes, middle ear and membrana tympani normal. Thorough general care improved the ear symptoms.

October 28, 1914, reported rheumatic pains and swollen joints. Small infected tonsils. Smears showing

a mixed infection chiefly encapsulated diplococci. Trichloracetic acid to the infected crypts and autogenous vaccine were used with partial improvement then relapses.

February 2, 1915, small tonsils were enucleated. Mr. Moody reports histologically, small islands of cartilage in each tonsil. Bacteriological examination showed hemolytic streptococci 20 and streptococcus viridans 1. No vaccines were used in this case.

J. E. P., examined in July 1911. Her general physical findings were negative. She had a moderate grade of anemia. The stomach showed a picture of hyperchlorydria, the total acid measuring 65, but there were no findings of ulcer. The urine showed nothing abnormal. Under treatment she improved very much. Her headaches disappeared and she was discharged from the office, but reappeared in July, 1912, and complained of swelling of both feet and legs. At that time she showed a myocardial disturbance and was put upon suitable measures for her heart. The swelling disappeared and has not returned since that time. Later examinations of her stomach showed normal findings. An x-ray examination made in July, 1914, showed a perfectly normal stomach, somewhat prolapsed, moderate dilation of the heart, and a colon distended throughout with the bismuth mass suggestive of an atonic bowel. The urine picture in the later months has been normal. The headache has been gone for some time. However, she had arthritic manifestations and some evidence of neuritis and it was because of this that we urged that her tonsils be carefully investigated. She has improved since that time. No arthritic manifestations.

Case 8. J. B., aged 35 years. General diagnosis, atypical hyperthyroidea with gastro-intestinal disturbances. Improved with diet and hygienic measures. No arthritis.

History of many attacks of sore throat. October 16, 1914 low grade inflammation of left tonsil with ulcer on its posterior inner surface and anterior cervical adenopathy. Smears from expressed tonsil secretion showed encapsulated diplococci, some in short chains, fusiform bacilli and spirilla of Vincent. Wassermann negative.

February 12, 1915, enucleated tonsils. Dr. Moody reported small crypt abscesses and pure culture of hemolytic streptococci.

March 13, 1915, patient reported comfortable throat which she had not experienced in years. Improvement in general condition is ascribed at least in part to removal of infected tonsils which undoubtedly were a factor in producing the hyperthyroidea.

Case 9. I. C. E., male, aged 29 years. Was first examined November 7, 1903. He gave a history of an attack of iritis two years before in the left eye and was said to have rheumatism, and one attack of sciatica lasting three months. He had several attacks of gonorrhea followed by so-called gleet. The earlier attacks were treated with sweats and salicylates and empirical diet generally, and with atropia, dionin, duboisin locally, etc. A rheumatic sore throat accompanied these attacks. This patient passed through four attacks before the work in the chemistry of metabolism could be applied.

April 11, 1912, he came on account of sore throat. The tonsils were somewhat hypertrophied but no secretion could be found in the crypts and no inflammatory process existed. The sore throat was a toxic neuritis, as shown by the results of the general examination made at this time.

General examination report by Dr. M. M. Portis:

Mr. I. C. E., seen first August 20, 1912, shows the following: Slight enlargement of the thyroid, a fine tremor, but no tachycardia. The blood pressure measures 115. The stomach test shows a picture of acid catarrh, the total acid measuring 88; no occult blood; ferments present in normal amount; motor power normal. The blood showed a distinct secondary anemia. The stool showed undigested meat fibers and excessive fermentation. I consider him a case of masked or atypical Graves' disease.

Mr. I. C. E. has been sending specimens since August 20, 1912, at variable periods depending upon his condition. The stool picture has been variable. Whenever Mr. E. has been allowed to take a small amount of meat, or has taken it without permission, the stool has promptly shown undigested muscle fibers in excess, a large amount of fermentation, bacteria in excess and increased mucus. The urine picture has shown an increased acidity, the presence of indican and indolacetic acid and an increase of the ethereal sulphates. It has been interesting in his case that his clinical symptoms, especially those of the throat, have varied with his pathologic laboratory findings.

Eye Findings: June 30, 1913. Fresh attack iritis right eye, recovering under atropin and general regimé. Nose was again found negative.

August 15, 1913. Sudden iritis in the left eye with marked vitreous haze and deposits on posterior lens capsule. At this time Wassermann was negative; gonorrheal fixation test was negative; bacteriologic examination of secretion from the prostate was also negative. General treatment was resumed and patient confessed to irregular observance of diet, etc. At this time mercury inunctions and K. I. were used for a time but abandoned.

September 20, 1913. There have been no more attacks, and vision remains the same at the time of writing this report, when with astigmatic correction L. E. = 20/20 — 2; R. E. 20/15 — 1.

October 11, 1913. Throat still sore and soreness in muscles of neck.

August 25, 1914. For first time tonsils showed secretion, which on smear seemed to be pneumococci. Tonsils were enucleated August 27, 1914. Dr. Moody reports marked increase in connective tissue. Cultures showed hemolytic streptococci 20. Streptococcus viridans 1. Six doses of the autogenous were administered. There has been no sore throat since.

April 29, 1915, recurrence of mild iritis right eye following use of alcohol and diet indiscretions. No sore throat or muscle soreness.

Case 10. J. K., Jr., aged 10 years. Below par physically, small for his age, no appetite, languid, school work very much below average, difficulty in using eyes, although eye examination showed only small amount of hypermetropic astigmatism.

General examination as follows: Signs of old rachitis; slight tenderness over ileo-cecal region indicating possible quiescent appendicitis; secondary anemia; stool negative. As a course of diet and hygenic measures gave only partial relief the author was asked to examine the tonsils. Adenoids and infected tonsils were found and removed.

Dr. Moody reported January 24, 1915, hemolytic streptococci 2, streptococcus viridans 5, and hemolytic staphylococci 10 from tonsil cultures.

May 5, 1915, his general condition was entirely normal. There has been a very marked gain in weight and appetite. His last school report showed such high marks as to receive special approval from the school principal.

THE DIAGNOSIS OF OTOSCLEROSIS.*

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Before speaking of the diagnosis it is well to state definitely my conception of otosclerosis. I believe otosclerosis to be a non-suppurative osteitis of the bony capsule of the labyrinth secondary to a primary focus of infection elsewhere in the body, which focus of infection is frequently situated in the tonsils or accessory cavities of the nose. It is the same process that occurs in rheumatoid arthritis.

This paper is based on the records of 50 cases of which I have seen 40. The other ten records have been taken from the histories in the Central Free Dispensary.

In the Central Free Dispensary we use a Bezold Edelmann set of tuning forks. In my private work I use a set of c tuning forks giving the octaves of 32 dv, 64, 128, 256, 1024, 2048 and 5096, the A Edelmann fork vibrating 3 minutes when forcibly struck, and the Edelmann whistle. The A fork is used for determining the duration of bone conduction; the c = 256 dv. is used for the Rinne; the lower limit is recorded as the number of vibrations given by the lowest fork heard; and the upper limit is recorded as the number of vibrations per second of the Edelmann whistle.

If my conception of what constitutes otosclerosis is correct we may have the following conditions:

1. Otosclerosis causing fixation of the stapes.
2. Otosclerosis in the vicinity of the stapes without causing fixation.
3. Otosclerosis involving the apical turn of the cochlea.
4. Otosclerosis involving any intermediate portion of the cochlea.
5. Various combinations of these conditions, the most frequent of which is otosclerosis in the vicinity of the stapes with fixation of the stapes.
6. Any of the above conditions may be far advanced, i. e. with degeneration of the organ of Corti or of the cochlear branch of the auditory nerve.

Bezold's trial holds good for the first and fifth of these conditions only, since it is dependent on fixation of the stapes.

To discuss these various conditions separately:

1. *Otosclerosis causing fixation of the stapes.*

The diagnosis of this condition is the diagnosis of bony fixation of the stapes and is made on the Bezold triad of:

a. Elevation of the lower tone limit. A moderate elevation of the lower tone limit occurs in any middle ear type of deafness but in no middle ear deafness is the lower limit raised as much as it is in bony fixation of the stapes. Where the lower limit is raised to 128 vibrations per second it can hardly be due to anything short of bony fixation, and bony fixation is highly probable if the lower limit is raised to 64.

b. Bone conduction prolonged for A. This symptom also occurs in any middle ear deafness but not to so marked a degree as in otosclerosis. When the A fork of the Edelmann set is used, which vibrates 3 minutes, a prolongation of bone conduction of 30 seconds speaks for bony ankylosis of the stapes. Middle ear deafness rarely causes this much prolongation of bone conduction for this fork and the more the conduction is prolonged, the more certain is the presence of bony ankylosis.

c. Negative Rinne for a. This again depends on the fixation of the stapes and may vary from a shortened positive Rinne through a plus or minus Rinne to a negative Rinne. The more marked the bony fixation the more strongly marked is the negative Rinne. In certain cases the a fork will not be heard at all by air conduction while it is

*Read at the sixty-fifth annual meeting of the Illinois State Medical Society, at Springfield, May, 1915.

heard much longer by bone conduction than the examiner hears it.

In addition to the Bezold triad we have:

d. Paracusis Willisii. This is an early symptom in most cases. It is not found in those cases where the bony ankylosis is confined to one ear, e. g. in the case of B. O. G., whose tuning fork findings are as follows:

Low limit, R. 28
L. 100
Upper limit, R. 11500
L. 6900
Whisper R. "28" = 1 m.
L. "28"=10 cm.

In this case there was no bony fixation in the right ear and for this reason there was no paracusis Willisii. This accounts for the patient's opinion that "the statement that such cases hear better in noisy places is largely fake."

The same condition occurred in G. M., where the tuning fork findings were:

Low limit, R. 128
L. 32
High limit, R.=25000
L.=25000
Whisper R. "24"=10 cm. "66"=45 cm.
L. "24"= 4 m. "66"=44 m.

Here there was no bony fixation of the left ear, hence no paracusis Willisii.

In some of the cases paracusis Willisii is a most striking symptom as in case of C. A. P. who stated that he "can hear a pin drop in a boiler shop"; or of E. B., who stated that on a train no one would know that she is deaf; or of M. D., who stated that when in the vicinity of music she hears as well as any one.

e. Explosive noises are heard in many cases and these are of sufficient intensity to awaken the patient from sound sleep, as in the case of E. A. and the other patient who stated that they were often awakened at night thinking that there was a thunderstorm, only to find the night clear.

f. Some of these patients speak in a low voice because the increased bone conduction misleads them as to the intensity of their own voices.

g. Some of these patients complain of dizziness, but these attacks are rarely severe or troublesome.

h. Some of these patients show a rosy hue in the region of the promontory, but such cases are not common and this symptom is not confined to this form of otosclerosis.

i. Occasionally a patient has pain in the ear. This is not marked and may be due to the inflammatory process involving the articulation of the stapes and the oval window.

2. *Otosclerosis in the vicinity of the stapes but not causing fixation.*

The diagnosis of this condition is difficult. Obviously Bezold's triad is missing, since there is no bony fixation of the stapes. About the only symptoms that may be referred to this condition in the present state of our knowledge are:

1. Deafness for the upper tones in a young patient, particularly if unilateral and without obvious connection with meningitis, syphilis, mumps, or toxemia of any sort.
2. Bone conduction normal.
3. Low limit normal.
4. High pitched subjective noises.
5. Possibly rosy tint in the region of the promontory.
6. Local source of infection.
7. Progressive deafness.

3. *Otosclerosis involving the apical turn of the cochlea.*

Here the symptoms to be expected are:

1. Deafness for the low tones.
2. Bone conduction shortened for the low tones.
3. Young adult.
4. Female sex in the majority of cases.
5. A primary source of infection.
6. Exclusion of the ordinary causes of a labyrinthine deafness.

4. *Otosclerosis involving any intermediate part of the cochlea.*

Here we may expect to find:

1. Tone islands and tone defects.
2. Bone conduction shortened for the particular tones not heard by air conduction.
3. Young adults.
4. Female sex preponderating.
5. Ordinary causes of labyrinthine deafness should be excluded, particularly epidemic cerebrospinal meningitis.

This condition may be difficult or impossible to diagnose clinically and can only be made with probability in such cases of labyrinthine deafness

as depart from the ordinary course of labyrinthine deafness.

5. *Various combinations of the preceding forms.*

This is the most common form of otosclerosis and the diagnosis is based on the presence of the signs and symptoms already given for the different conditions.

6. *Far advanced cases.* Here the condition differs from the conditions already given in that these cases present the results of degeneration of the cochlear nerve and organ of Corti. On this account paracusis Willisii is often absent as in the case of Mrs. M. B. M., who stated that she formerly heard better in a noisy place but does not now. Her tuning fork tests gave:

Low limit R. 3906

L. totally deaf.

In these far advanced cases bone conduction may be very much shortened and air conduction entirely absent. In other words the findings of a labyrinthine deafness only may be present instead of the findings of a mixed middle ear and labyrinthine deafness. In such a case the history must be obtained. A labyrinthine deafness that began in young adult life with paracusis Willisii and loud explosive noises following some local source of infection is very apt to be otosclerosis.

Individual Symptoms.—The drum membranes were normal in 27 cases. One or both drum membranes were retracted in 23 cases. A reddish tint was present in the region of the promontory in four cases.

The Eustachian tubes were noted as open in four cases. In most of the histories this point was not noted.

The Rinne test was noted as negative in twenty-two. Not noted in the others.

The upper tone limit was lowered in 44, normal in 5; not noted in 1.

In one of the cases it was 19,000 when examined November, 1913, but had returned to the normal 25,000 in April, 1915.

The lower limit was:

32 in both ears in 6;

64 in both ears in 8;

32 in one ear and 64 in the other in 2;

128 in both ears in 9;

64 in one ear and 128 in the other in 7;

Above 128 in both ears in 13;

128 in one ear and higher in the other in 4.

That is, the lower tone limit was 128 or over in 33 cases. Explosive tinnitus was noted as present in 30 cases and as absent in 8. In the remainder of the histories this point is not mentioned.

Paracusis Willisii is noted as present in 30 cases and as absent in 6.

Low speaking voice is noted in 2. Not mentioned in the others.

Sex—Females, 36; males, 14.

Average age of females on seeking treatment, 34 years, 5 months.

Average age of females at onset of disease, 28 years, 8 months.

Average age of males on seeking treatment, 28 years, 6 months.

Average age of males at onset of disease, 19 years, 8 months.

I do not believe that the patients gave accurate data as to the time of onset of the disease in most cases. The following history is characteristic:

E. A., female, occupation housework. Aged 23 years. American. Single. Complains of deafness and tinnitus aurium. Father alive and well at 76. Mothed dead at 52 of dropsy. One brother alive and well. One brother died in infancy. One sister alive and well. Patient had the usual diseases of childhood, including chicken pox, measles and mumps. Present trouble began at 15 following a bad cold. She became hard of hearing and tinnitus developed about the same time. The tinnitus is of a buzzing character, at times roaring and like pistol shots, or like the noise of a motor cycle. She has been awakened by them at nights. She was dizzy once or twice near the onset of the disease. She had a good deal of sore throat about the age of 12. She hears better than her normal sister when on the street cars. She also hears better in a noise.

Auricles normal. Canals normal. Mastoids normal. Facial nerves normal.

Hears whisper R. "24" = ad concham. "66" = 10 cm.
L. "24" = ad concham. "66" = 10 cm.

Bone conduction prolonged 35 sec.

Weber not lateralized for A.; lateralized to the left for c = 256.

Rinne R.—
L.—

Low limit R. 64.
L. 128.

High Limit R. 25000.
L. 25000.

Dizziness is mentioned in 7 of the cases.

Blurred hearing is mentioned in 2.

Bone conduction was shortened in 3.

Bone conduction was moderately prolonged without mention of the time in 8.

Bone conduction was prolonged:

15 sec. in 4.	40 sec. in 3.
20 sec. in 3.	45 sec. in 3.
25 sec. in 4.	50 sec. in 2.
30 sec. in 9.	55 sec. in 1.
35 sec. in 2.	60 sec. in 2.= 33 cases.

Much prolonged without mention of time in 2.

Average prolongation of bone conduction in cases where time of prolongation is noted 33 sec.

Of these 50 cases 31 gave a probable primary source of infection, but it must be remembered that most of these histories were taken before I was impressed with the fact that the disease was a secondary infection and that since then I have been able to get hold of but a few of these patients to investigate this point. In these 31 cases possible etiologic relationships were noted as follows:

Scarlet fever 1.
Measles 2.
Diphtheria 3.
Repeated sore throats 5.
Atrophic rhinitis 2.
Appendicitis 1.
Nasopharyngitis 2.
Mycosis tonsillaris 1.
Tonsil and adenoid operations 7.
Cheesy plugs in tonsils 3.
Rheumatism 6.
Started in childbed 2.
Worse after childbirth 7.

One case not included in the above list showed this feature most distinctly. She was a patient in the maternity ward of Cook County Hospital; who had a slight infection following delivery. Her temperature rose to about 102 for three days. Her hearing, which had not been lowered enough to be troublesome before delivery, became so much worse that she could only hear the loud spoken voice close to the ear after her infection.

Nervous and financial worries 2.
Quinine 1.
Meningitis 1.
Blow on head 2.
St. Vitus Dance 1.

Thus the conditions that are ordinarily considered to stand in a causal relationship to rheumatoid arthritis are mentioned 42 times in these 31 cases. I may say further that Dr. Rosenow told me in a private talk that he had found lesions in the ears of rabbits which he had inoculated with the rheumatoid arthritis strain of Streptococcus viridens. As yet I have been unable to procure any of these rabbit ears for microscopic examination.

122 South Michigan avenue.

URINARY ANALYSIS IN THE TREATMENT OF NEPHRITIS.*

B. G. R. Williams, M. D., Paris, Ill.

"The master key to the door of Hope
May be held by you or me,
But pray what use is this master key
If withheld by you or me?"

Since man has ministered to man in his bodily afflictions, just that long has man studied these afflictions from as many points of view as could be devised, well knowing that only with perfect understanding comes perfect service.

I am not to blame for the subject upon which I have prepared myself. Your program committee merely notified me that I had been placed down for this title, and I suppose that I am expected to give a good account of myself. The subject is a unique one, and one which I trust will not prove an altogether unfortunate selection.

You will realize in the first place that it does not permit me to copy a paper from the journals and text-books, but forces me to theorize here and there and finally relate to you my observations.

We must assume that Bright's disease has been diagnosed in our patient, either by symptomatology or laboratory methods and that we are ready to plan our treatment. In what way will the uranalysis aid us to save his life, or make him as comfortable as possible until he succumbs?

Or will the uranalysis, in fact, provide any therapeutic indications whatsoever?

A study contrast may be wise before investigating the therapeutic indications; and it may be well for us to roughly classify the various methods of treating nephritis:

In class one, we must place the much to be

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desired specifics. Various specifics for nephritis have been suggested, some based upon empirical and others upon rational grounds. It is a safe guess that hundreds of "sure cures" have been proposed, tried out and abandoned, and about the only ones remaining are those which are advertised in the newspapers.

In the second class come the symptomatics. Far be it from me to overlook the value of the symptomatics. We must not forget to treat the dyspnea, psychoses, cardiac complications, hemorrhages, diarrhea, nausea, headache, edemas, etc., as well as the unusual concomitants of diseased kidney.

Into a third great class fall the very important dietetic measures. These are based in turn upon indications suggested in part by either or both the symptoms and laboratory finds. Unfortunately in the past they have been somewhat empirical, but there is a tendency to drift toward rational views. Nowadays we do not deny to the nephritic many of those foods upon which we formerly frowned, while others to which we tied our therapeutic hopes have shown some serious shortcomings.

Without further ado let us proceed to the great fourth class of indications—those suggested by the uranalysis:

Amount.—The total 24-hour quantity of urine is of great diagnostic importance, but it is doubtful if we are justified in treating the polyuria of chronic interstitial nephritis. It is probable that the patient will be actually harmed by any measures aimed to reduce the total quantity. In the oliguric nephritides it may be advisable to increase the quantity of urine. In the selection of diuretics it may be well to warn ourselves that those which attempt to whip the renal cells into increased exertion, should be avoided. Thus from a theoretical standpoint at least caffeine, theobromine, diuretin and other renal diuretics should be avoided, and we should fall back upon water prescriptions or the cardiac diuretics as digitalis, strophanthus, etc. It seems to me that a severe oliguria must be considered quite as death-dealing as cardiac insufficiency or any other severe aspect in the clinical history. When day after day the amount of urine rarely exceeds one pint, it is evident that not enough water is present to hold in solution and carry away the necessary urinary solids. We speak of the serious outlook in those cases where there is urea or chlorid retention, but give very little attention to what is perhaps the chief cause. I shall have something to say upon acid retention or fixation in the renal cell. If I should place a drop of sulfuric acid upon the skin of my arm and permit it to remain six hours, there would result a severe injury. But if I place the same drop upon my arm and add to it a single drop of water, the injury will be much less. And if I repeatedly add water the injury will be slight indeed.

I have referred to water prescribing. It is not sufficient to tell the patient to drink plenty of water. It is much better to prescribe it in sufficient dosage to be taken at regular intervals. I will have occasion to refer to this a bit later when speaking of Fischer's alkaline treatment.

Even as polyuria is perhaps not to be treated and even as oliguria should be treated, so anuria, a complication of frequent occurrence, *must be treated.*

Anuria, or complete absence of urine, for several days is always a condition of considerable importance, notwithstanding the many contradictory statements in texts. That anuria without uremia, may persist for a considerable period, I will not gainsay, but how unexpectedly convulsions and fatal coma may suddenly appear, has been realized by all of us. The kidney has for its purpose the secretion of urine; let this purpose be thwarted, and the condition may at any time quickly pass beyond the action of remedial measures.

Let me repeat; anuria is always a serious occurrence. Even though the patient laughs at your painstaking; even though the texts tell you that Dr. So-And-So reported a case where the patient recovered after a two weeks' anuria, do not fail to resort to the use of hot packs, pilocarpin and elaterin.

It has been said that anuria cannot be held responsible for the symptoms of uremia. Common sense shows the stupidity of such a claim. Of the nature of uremia, we know very little, but clinical experience convinces that it must be very closely associated with anuria. Do not underrate anuria.

The color, odor and general appearance of the urinary specimen may mean much to the diag-

nosis of nephritis, but there is no logical reason for their therapeutic correction.

The specific gravity is of some importance in connection with the total quantity of urine. In other words, the total solids are of some importance, especially a marked reduction. But I would say in general that quantitative studies of the urea, chlorids and so on are likely to give more definite and usable information so that we shall pass on hastily.

Reaction. The reaction of the urine in nephritis is rarely normal. That is, we rarely find a slight acidity due to acid salts but either an intense acidity or a marked fixed alkalinity which persists from day to day. These findings have confused us in the past, but since the wonderful studies of Fischer, we have come to understand them. All nephritides are acid in origin. These acids are variously derived, some from proteids in the process of decomposition. Thus either from proteid foodstuffs in the colon or from body proteids in local suppurative processes our contribution may come. These acids are of organic derivation and are essentially poisonous. Their presence in the urine gives it its high acidity. In the process of passing through the renal parenchyma the kidney cells are injured but retain the acids in part. At some stage in every nephritis, they refuse to further excrete the acids and either retain them in their protoplasm or force the blood to carry them elsewhere. Then the urine becomes alkaline and usually remains alkaline until death. Let us turn our attention to one of the causes of nephritis and show how nephritis may be cured by careful uranalyses undertaken early in the disease.

Among the acidemias that of colonic stasis is most important. We speak of the condition as intestinal acidemia, or copremia. In certain persons, as a result of constipation, excessive ingestion of proteids, enteroptosis or unknown causes, certain bacteria in the colon attack the proteid foodstuffs, breaking them up into organic acids and other decomposition products, and these are absorbed and appear, at least in part, in the urine. We do not know the exact composition of all these acid bodies. Among them have been found carbolic acid, indolacetic acid, acids of the sulphur series, hydrocyanic acid (?), paraoxyphenylacetic acid and paraoxyphenylpropionic acid. Besides these are the true indicans, which I shall consider later. Indicanuria and hyperacid urines have about the same meaning. Both conditions may occur at the same time.

Let us pass by the headaches and other symptoms of copremia with the remark that they are but the initial symptoms of the Bright's to follow, and study the action upon the kidney. In all cases of indicanuria and highly acid urine due to intestinal acidemia, we are very likely to find traces of serum albumin and hyalin casts. This does not mean at this time a hopeless nephritis, but it does signify that the injury to the kidney is consequential and must be checked. In fact, we will observe an attempt upon the part of the tissues to combat the acidemia, but the attempt protects the tissue cells other than those of the kidney. In other words, the ammonia of the urine is increased at the expense of the urea, because the alkaline precursors have united in part with these poisonous acids, that the fixed alkalies of the tissues may be spared, but this does not protect to any extent the protoplasm of the ultimate secreting renal unit. Of course, the total nitrogen is unaltered, but the urea is low, and this low urea must not be taken as indication of retention, cannot be, in fact, if the other estimations are made and considered.

Before proceeding to a consideration of the other poisonous urinary hyperacidities, let us look into the treatment of copremia, the cause of perhaps seventy-five per cent of all cases of chronic nephritis.

There is an old caution, "Examine the urine in every case of persistent headache."

There is a better caution nowadays, not only better from many other standpoints but especially for the reason that headache may occur a bit late in nephritis, "Examine every man's urine at least once or twice a year whether or not he complains of symptoms." Of course, this cannot be done in the majority of cases, but it does not lessen the value of the advice, for I am convinced that these forms of nephritis can usually be cured long before symptoms appear.

The man who hopes to treat intestinal acidemia by a course of alkalies alone will occupy a position similar to that of the boy who tried to drink up the water from the leaking dam. The man who hopes to accomplish noteworthy re-

sults by the administration of a single cathartic will be but little better off. Both of these methods are not without value, but there are other principles which must be carried out if any degree of success is expected. Only a week or so ago, I heard Fischer's alkaline treatment condemned by a local physician in no uncertain language, but he had depended upon a neutralization of consequences rather than an attack upon causes for his success, a principle which clings as closely to the mind of the average practitioner as did the old man of the sea round Sinbad's neck.

As a whole, the treatment of copremic acidemia may be expressed catagorically as follows:

1. Reduction of the proteid diet.
2. Elimination of the focus of the intoxication.
3. Administration of antacids.

Obviously the main problem will lie in eliminating the focus of intoxication. But how?

A preliminary cathartic is necessary, and since we are dealing with the colon, this obviously must be a saline. Then should follow a course of laxative alkaline salines, to insure a strict housecleaning in this natural incubator. This may be coupled with the intelligent use of efficient intestinal antiseptics. We know that these will not murder every erring germ, nevertheless much may be accomplished in this direction.

Then after a week or so we cease giving the antiseptics but continue the laxatives—we are ready to substitute a well-behaved germ. Yeasts appear to be of some value, but the most efficient policeman of the colon appears to be Metchnikoff's bacillus bulgaricus; and this I do not hesitate to say, judging from my observations in hundreds of cases, will act almost as a specific when backed by proper attention to the other principles of treatment. The urinary reaction will become normal, ammonia will sink and urea rise, indicans will disappear. Albumin will disappear from the urine unless the case has gone too far, casts cannot be found, vertigo, nausea, mental torpor and headache will clear up, the complexion will become better and appetite will be regained. In other words, we have cured a case of nephritis. We have held and used the master key to the door of Hope.

Of antacids there is no lack and they may be carefully used along with the treatment devised to eliminate the focus of intoxication.

Now and then this line of treatment may fail or must be continued indefinitely, excellent though it has proven in the majority of cases. What is the trouble? Examination will reveal that an enteroptosis or other anatomical condition exists favoring stasis; and here we must call upon the surgeon to help us out. As a rule these cases may be reached by proper dietetic and medicinal measures. I know of one case of so-called neurasthenia in which a trace of albumin and many hyalin casts brought home to the attending physician and myself the fact that this neurasthenia had an organic basis. High acids, high ammonia with normal nitrogen and indican gave us the clew. This case of enteroptosis was, I sincerely believe, rescued from the grave of a nephritic by the fact that two rapidly succeeding pregnancies by some means certainly mechanical (as supporting the colon) took care of the condition and the strain was removed from the kidney parenchyma. What this woman now needs is either an operation or another pregnancy.

In previous papers I have insisted that an acidemia may exist by virtue of necrotic changes in the tissue themselves. The findings in the urine are similar to those detailed above. Indicans are less frequently found. The breaking up of the body fats may add the fatty acids, those poisons recently shown by Tallqvist and Vetlessen to be essentially homolytic in nature (explaining, perhaps, the severe anemia associated with some of the nephritides); still the picture of high acids, constant nitrogen and ammonia overbalancing the urea is not unlike that noted in the copremic acidemias. The blood examination will reveal an iodophilia and set us searching for the focus in a necrotic tumor, localized pus, tuberculous exudate, etc. (lardaceous kidney), in all cases there being truly an excretion of poisonous proteid-decomposition-products via the urine.

All of which will explain why proper attention to the colon does not always clear up an acidemia. Now it has been known for many years that hidden suppurative processes, though of a low grade, may lead to nephritis, and though the theory has been popularized by Billings and others, no special credit is due these men, but it is rather to our discredit that we

once learned and again unlearned the lesson. Perhaps the theory was carried too far at the time. At any rate our attention is again directed to the nasal sinuses, tonsils, teeth, lymph glands, lungs, gall bladder, appendix and so on in our search for the factory where the poisonous acids are made. I have seen instances where the removal of a decaying tooth was followed not only by beneficial results as noted by the appearance of the patient, but a vicious appearing urine promptly became normal. If the focus cannot be found, we should at least use neutralizing antacids to spare the kidney parenchyma as much as possible.

Serum Albumin. We have seen above that a trace of albumin may be loosed into the urine when the renal cells are forced to excrete poisonous bodies. This brings us to the entire question of albuminuria and its significance.

When a slight heat and nitric acid precipitate cannot be explained by nucleoproteids, Bence-Jones body, calcium phosphate, etc., or when such coagulum is marked or persistent or both, we are dealing with true serum albumin, a finding which is never physiological.

Serum albumin may be derived in part from the blood, escaping through the glomerulus by virtue of general or local alterations in blood pressure, injury either to the endothelium or secreting epithelium, or for unknown reasons. It may be derived from the kidney cells by virtue of retrograde changes.

The albuminurias have been variously classified. The only class with which we are concerned is the "renal albuminuria." To prove a true renal albuminuria, several rules must be kept in mind, to wit:

1. The albumin must be serum albumin.
2. The albuminuria must be persistent or nearly so.
3. The other serum albuminurias must be ruled out.
4. The presence of cylinder casts, cells from the uriniferous tubules and so on argue for true renal albuminuria. How shall we treat renal albuminuria?

We have touched upon the logical treatment of the incipient cases, and there is no better treatment for the more progressive cases of albuminuria. *Clean up the focus of poison manufacture.*

We must do more in the more progressive cases of albuminuria, and a few principles are here suggested.

All of this serum albumin does not come from the kidney, but much of it from the blood; and it is probable that the patient does not have this albumin to spare. It is in just such cases that lecithin and nuclein, administered for prolonged periods, prove peculiarly efficacious. In acceptable form they provide exactly the reconstructive material demanded by the discouraged cells, and the remote metabolic wrong being corrected, the drain ceases.

There is abundance of clinical proof that an active preparation of cactus grandiflorus, through its influence upon the heart and circulation, materially improves nutrition and reduces the output of albumin. Many well informed and observant therapeutists prefer cactus to any other preparation, as digitalis, in such cases.

It may then be advantageous to treat the albuminuria by aiming our efforts at the blood pressure; investigate the heart and arteries, and give digitalin (or cactus) or glonoin, with elaterin or milder laxative as indicated and the albumin of circulatory origin will be held back except in so far as released by diseased kidney tissue. I know of no way to prevent the escape of circulating albumin when the renal substance is already destroyed; we certainly cannot hope to check it by attention solely to the heart and arteries.

Can we decrease the serum albumin resulting from cloudy swelling of renal cells and the ultimate plasmolysis consequent upon it? I think that we can; in fact, Fischer apparently proves that this process is directly due (except, perhaps, in mercurial nephritis, etc.) to a storing up of acids in these cells and injury to the protoplasm. Thus the indications (other than the prevention of acid elaboration where possible) are clear for dilution and alkalinization. In other words, we must prescribe water and alkalies freely if we hope to decrease the albumin from this source. This will explain why alkaline remedies given with copious draughts of water, often produce such marked benefit in the earlier stages of nephritis.

But as yet we are clutching only at the fringes of knowledge. We know something concerning nephritis but some particulars of the pathology

are not yet clear. And how may we successfully treat a disease until we know its pathology? We have shown that the measures aimed at avoiding acid fermentation and neutralizing those acids or else diluting those already formed comprise the rational treatment of albuminuria. But we are justified in the absence of complete pathological knowledge in turning to certain remedies now regarded as empirical, but which tomorrow when our research workers have cleared up this baffling field, stand best chance of a place in our rational list. Of these special mention is to be made of the active principle of the bear berry—a grain an hour at first and when the albumin drops lower in daily excretion, to give a grain every four hours thereafter. Now I can say very candidly that I have never seen any one remedy clear the urine of albumin in so many cases as does the bear berry, and I have seen it tried upon a large number of cases usually in connection with the fight upon the acids.

A couple of months ago I saw two cases of nephritis secondary to influenza in which the bear berry was not satisfactory. The physician claimed excellent results in some of these cases with an active iron. We did not secure the proper preparation at the time but used instead a proprietary preparation of iron with excellent results. After giving the iron, the bear berry completed the clearing of the urine.

Epsom salt is advised upon empirical grounds, not by mouth but as follows: A tub is filled with hot water previously saturated with epsom salt. The patient sponges quickly so that the salt solution comes into contact with every particle of the skin. Immediately he deserts the water and rubs or is rubbed briskly with a rough towel. This treatment is not applicable to the more serious cases because of the exercise.

Let me hastily review the treatment of albuminuria as such:

1. Prevent, if possible, acid formation.
2. Dilute and neutralize all acids the formation of which cannot be prevented.
3. Keep the blood pressure and heart action as perfect as possible.
4. Bear berry and active iron are, in my experience and observation, most excellent empirical remedies.
5. The epsom bath is good in some cases.

This is all I shall have to say concerning the treatment of renal albuminuria as such. Not enough, perhaps, but my observation is that one line of treatment persistently followed often accomplishes much more than a "running hither and thither." I have seen tuberculous infection conquered by a monotonous routine of months; I have seen leukemia held in check and apparently cured by pushing one drug for a year. I have seen a man with pernicious anemia poisoned with arsenic which incidentally added years to his life. I have seen whooping cough, the disease of a thousand remedies, cut down to a week or so, from discouraged Osler's six weeks—"and by a bottle of something better than paregoric."

The text book tells us to try a little of this for a short time, and if we do not succeed we might try a little of something else. Now, I do not treat patients, but I have seen several cases of albuminuria treated, and my advice is: give each remedy a fair trial. Albuminuria does not appear in a day, nor can it be cured as quickly as that. The methods suggested in this paper are not claimed to be the best. You may know of a much better way of treating renal albuminuria, but do not be discouraged if spectacular results are not witnessed within a few days—aye, a few weeks.

A few words as to the diet. I cannot well undertake the dietetic consideration of the various nephritides as suggested by other laboratory findings, by symptoms and by signs, but rather from the standpoint of albuminuria. What effect, if any, does diet have upon the albuminuria? You will see that I have accounted in part for the albuminuria by cell death but in part from the blood, and I may get into pretty deep water if my treatment does not cover other causes.

I am told that excessive ingestion of proteids may increase the serum albumin in the urine, and observation in special cases would lead me to suspicion that this is true.

What of it? Must we in consequence withhold proteids from our patient when he needs them to take the place of those albuminous bodies passing away in his urine? This would be extreme. Precipitin tests may show dietetic albumin in the urine, but precipitin tests do not give percentages. In fact, dietetic albumin may be present in amounts of 1 per cent, serum albumin from blood and renal cells up to 99 per cent.

No, we have not yet proven that a renal albuminuria is an alimentary albuminuria.

Scalia has shown that when egg albumin is injected subcutaneously there may be an induced albuminuria in nephritics. But Scalia has proven nothing pertinent to the great question. Upon a mixed diet including eggs no reliable research worker has conclusively shown that the urine of a nephritic shows egg albumin in appreciable quantities. Krasnogorski has shown that the albuminurias of infancy contain no specific groups characteristic of the dietetic proteids, but that the bodies are derived entirely from the tissue albumins.

In chronic albuminuria the indications are somewhat different from acute nephritis. In the latter the fight is short and dietetic measures may be rigid. But how may we expect to lengthen the lives of our chronic nephritics by starvation? I have seen these patients taught by some quack or some shortsighted physician, test their own urine for albumin day after day, cut down their own miserable existence or make life almost unbearable for their friends. Quantitative albumin estimations are of some diagnostic worth but of little prognostic value.

A mixed diet is necessary for the nephritic, and this diet must contain certain proteids—milk, eggs and even meats (especially the white meats). An absolute milk diet may be advisable in acute nephritis but never in chronic nephritis in that it is too rich in albumins.

Albuminuria may better be treated from a dietetic standpoint not by eliminating proteids but by doing away with kidney poisons—alcohol, red meats (kreatinin) and condiments, especially sodium chlorid, of which I will speak later.

I have given so much time to the indications supplied by albuminuria of the serum type, I must hasten over the other albumins without comment.

Urobilinogen is important inasmuch as it suggests a very useful therapeutic test in the complicated cardiac-hepatic-nephritides where we are not certain of therapeutic indications and of which is the primary condition. I cannot otherwise go into the question of the significance of urobilinogen, a pigment which means much in the liver diagnoses. Under digitalis treatment the disappearance of albumin and urobilinogen points to primary heart disease, the disappearance of urobilinogen alone to hepatic disease and the disappearance of albumin alone to primary renal disease. I am very sorry that I have not the time to enter fully into urobilinogenuria.

Bilirubin. When bilirubin appears in the urine of nephritis, the outlook is serious for bilirubin is more poisonous to the renal cell than is an organic acid. The toxic desquamation of pigmented cells furnishes the proof. The treatment, of course, depends upon the cause of the bilirubinuria and cannot be considered here. Undoubtedly many cases of chronic parenchymatous nephritis are directly due to prolonged or severe bilirubinemia.

Carbolic acid, indican, indolacetic acid, etc., have been considered under the subject of acidity.

Chlorids. A high sodium chlorid content to the urine of any nephritic suggests reduction, for we know that retention either in part or entirely is more likely to occur; and that this salt retention favors edema, dyspnea and other complications. At a certain point in almost every case of nephritis, the kidney cells excrete weakly or not at all the superfluous salt. Knowing now as we do of the law of salt equilibrium, we do not hesitate to exclude as nearly as possible all salt in these late cases. The salt is excluded at the dining table. It is excluded in the kitchen. We have even gone further and selected foods of a low salt content, especially milk, though we must keep in mind the caution concerning milk mentioned above. So rather than suggest any one perfect salt poor article of diet, we usually advise a diet mainly of milk and milk products, chicken, eggs and vegetables, avoiding especially other meats.

Phosphates. The irritating action of phosphates in large quantities upon a diseased parenchyma has been pointed out by von Noorden and others. It is impossible where true or clinical phosphaturia complicates nephritis, to expect much from diet, inasmuch as phosphoric acid is so well distributed in our foods. But von Noorden has shown that calcium carbonate added to the diet precipitates the phosphates as insoluble compounds, and they pass through the intestinal tract unabsorbed and consequently the renal cell is spared the duty of eliminating them.

Urea. A low 24-hour excretion of urea is taken as evidence of renal retention of that salt. It is not stored in the renal cells so far as has

been demonstrated but is kept in the blood and excreted by the other emunctories. Thus it may be demonstrated in the perspiration, and perhaps in the feces (?). The indication is in part, therefore, to call upon these for extra work in case of urea retention. We know of no means by which it may be increased in the urine late in nephritis, urea being of itself the most perfect diuretic. It is advisable, of course, to reduce the proteid diet to just what is necessary, not because urea is poisonous but closely related bodies may be very toxic. We must not forget that low urea in every case of nephritis may be explained in part by the acidemia, the ammonia being used in part to neutralize acids or acid action and that low urea is in part explained by failure of elaboration. But we know that urea retention does occur or else urea would be excreted by the proper route instead of by the skin, lungs, etc.

Cylindroids. Nephritis is not diagnosticated by the finding of cylindroids. Without any attempt at definition and differentiation, I will say that the cylindroid does furnish a therapeutic indication in nephritis. The false cast means a sluggish flow of urine through the tortuous secreting kidney tubule. But it is interesting to know that down through the animal and vegetable kingdoms, one of the laws of health is prompt removal of products of excretion. It may be true that even at Bowman's capsule there was a water paucity and a solids overplus, cells down the line may be reabsorbing the watery portions —upon all of these points we cannot definitely commit ourselves, but nevertheless we have to face the fact that the flow has been retarded sufficiently for a mucus cast of that uriniferous tubule to be formed. The treatment is that apparently of hastening the flow through the kidney and dilution. Consequently water prescribing or even the use of mild diuretics may be indicated.

Casts. The treatment of the cast matrix is essentially the treatment for renal albuminuria, it being fairly certain that hyalin is very closely related to serum albumin. It is not in all cases an excreted albumin but often the remains of a microscopic extravasation into a uriniferous tubule.

Granules and cells are extraneous to the cast pathology and their attachment or inclusion accidental. Therefore, the treatment differs. Cells and granules represent desquamation and retrograde changes respectively and the indications are those suggested by finding the renal cells in the urine.

Kidney Epithelium. I have been hurrying over the indications somewhat more rapidly than their importance justifies and I ask you to let me go more fully into the meaning of the kidney cell, the most important of all finds. Kidney cells occurring in the urine in considerable numbers or persistently, is a matter of deep concern to the therapeutist. The pathologist tells us that the cell from the uriniferous tubule when lost is not regenerated, and that its neighbors must take upon themselves the work of the lost one or else this work be left undone. Whether the poison be bacterial, bilirubin or acids it may slay the renal cell and it floats away into the urine forever. Other cells as in the shower of contracting kidney, are mechanically dislodged.

But the toxic desquamation is the more common type and death is brought to the ultimate secreting unit merely because it retains the poison being unable to pass it on. These renal cells of ours have hard tasks set before them in their span of three score years and ten, but after all a cell is a living mass of protoplasm, and no matter how great the specialization, all living matter may be killed. Of all factors, poisonous organic acids are chief, no matter where these acids may be formed—we know very well the focus in most cases. Just as there result cloudy swelling, coagulation necrosis and granular disintegration, so do these acids often pick upon the cement substance first of all, dissolving it, so that the cells are no longer bound to the membrana propria but slip into the current and are lost forever. And the finding of protoplasmic granules, nuclear remnants, granules in casts, tiny fat droplets or renal cells, all have the same significance.

I have spoken of the focus and the desirability of its elimination even though too late to repair the damage to an extent sufficient for a return to health. But nothing should be omitted which promises hope of prolonging life or making more comfortable the remaining days of the unfortunate.

It may not be the fault of the family physician, but rather the ignorance and carelessness of

the *patient* that he is dying of Bright's. Although merely a neutralizing treatment we must not forget the alkalies. In acid retention as indicated by the uranalysis, I can do no better than to repeat the recommendations of Fischer:

Acid intoxication is itself proportional to the concentration of the acid; and this must be kept as low as possible. This can be done by giving water. The administration should be regular. The night administration of water is as important as that throughout the day, for the production of toxin does not stop with nightfall. If the water contains an alkali of some sort so much the better. If the patient will tolerate it, one-half to one gram of sodium carbonate may be added to each glass of such alkaline or plain water.

CONCLUSIONS.

Nephritis may be cured. It may be cured, explains the physician, if patients would present themselves for a diagnosis before it is too late. But we have learned from our research workers that abnormal urinary states with indefinite symptomatology precede the typical and hopeless symptomatology by many months. As a matter of fact, these patients *do* present themselves for treatment in the curative stage in a very great number of instances; and I hesitate not to place the responsibility upon the shoulders of the physician rather than the patient. While we treat our patients for headache, indigestion, insomnia, neuralgia, and the many indefinite symptoms, the kidneys are being slowly eroded away by a urine in which can be demonstrated with ease poisonous organic acids, high ammonia, falling urea, the indicans and the first evidences of retrograde changes—the faintest trace of serum albumin and occasional renal cell or hyalin cast—all these at a time when proper remedial measures would not be in vain.

And when the typical edemas, dyspneas and psychoses appear, it is too late for correction.

Do not forget the urine when diagnosing: do not forget the urine when treating.

Do not forget the uranalysis in nephritis. Do not forget the uranalysis in any of the minor disorders which may be but warnings of the hopeless Bright's to follow.

In 1857, Barclay made the following remarks:

"When inquiring with some minuteness into the changes which urine undergoes, we will find that in very many instances its abnormal states are dependent on diseases of distant organs, by which the function of the kidney is merely interfered with." The proposition is not a new one.

And it is for the correction of these abnormal states I make my plea, for in their correction lies our sole hope of curing nephritis.

CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS.*

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Historical.—Although earlier papers upon the subject of congenital hypertrophic stenosis had been written it remained for Hirschprung, in 1887, to set forth the modern conception of this interesting anomaly, by the report of two cases. Hirschprung was the first to direct attention to the fact that the pathology of the condition is essentially a muscle hypertrophy and not usually a change in the submucosa. Finkelstein, in 1896, was the first to call attention to the palpable

Fig. 1. Congenital Hypertrophic Stenosis in a Child Two Months of Age.

tumor in these cases. The first case operated upon was by Stern in 1897. The second, though the first American case, was operated on by Willy Meyer in 1898. The first successful operation was performed by Löbker in 1898. Cases have been reported with increasing frequency during each succeeding year so that up to date there are over one thousand upon record and no doubt the files of many hospitals contain records of many more unreported.

Embryology.—There is nothing in the embryological development of the stomach to explain this lesion. However, during fetal life, the py-

*Read before the North Shore Branch of Chicago Medical Society.

lorus is relatively larger and firmer than it is later.

Etiology.—Male infants are more often affected. It occurs more frequently in the breast-fed. Ibrahim has noted severe gastric disturbances during pregnancy in the mother. Relative to age incidence, the onset of the first important symptom is about 25 per cent in the period from one to four days, 25 per cent in the period from four to fourteen days, 25 per cent in the period from two to three weeks and 25 per cent in the period from three to six weeks. After the eighth week it does not occur in typical form. There is much difference of opinion among the authorities as to the real pathogenesis. Some of this difference of opinion is based upon good sound reliable observation and study of cases clinically, surgically and at autopsy while more is based upon the pliable imaginations of the observers. The question of pathogenesis is very much unsettled and until definite reliable experimental work is brought forward, the question must be left open. Many have said that spasm may lead to hypertrophy, but there is no absolute proof of this either in physiology or by experiment. Hyperchlorhydria is often present, but that it is not a causative factor is proven by the fact that it may persist after recovery is well started. Hess has been able to produce visible peristalsis in the new born by placing 2 cc. of .4 per cent. hydrochloric acid in the stomach. Hypertrophic stenosis has been observed in a seven months fetus and in the new born and is undoubtedly a congenital condition. Thomson considers it a form of local gigantism and has found other similar conditions such as hypertrophy of the ureters and bladder. In about four per cent of the cases congenital anomalies are found elsewhere in the body. There is no experimental evidence of value for the etiology of this condition.

Pathology.—In the true Hirschprung's type, the local pathology consists of a cylindrical-shaped, firm, resistant structure in the region of the pylorus measuring two to three cm. in length and one and one-half to two cm. in thickness. In typical cases it is well demarcated from the stomach and duodenum. Upon section, the structure is seen to consist mainly of two hypertrophied muscular layers, i.e., the circular and the longitudinal. Occasionally, but not usually, there may be some increase in the fibrous tissue between the muscle layers and of the submucosa. The mucosa within the lumen is thrown into deep longitudinal folds, but at the entrance to the lumen the mucosa of the stomach is thrown into deep irregularly arranged or annular folds. The serosa over the tumor is unchanged. The entire stomach wall is often somewhat thicker than normal and more rigid. The mucosa is very rarely ulcerated or markedly hyperemic. If the stenosis is complete, the intestines are empty and small. The Hirschprung type should not be confused with the continuously contracted pylorus described by Pfaundler. Such systolic contractures occur in the pylorus of healthy infants and may persist at autopsy. The Hirschprung type is to be differentiated by the greater thickness of the musculature which is a real hypertrophy and by the fact that an antrum-systolic stomach will usually relax under pressure of 30 cm. of water pressure. Other less important differences are to be noticed.

Symptoms.—The three most important symptoms are vomiting, visible peristalsis and palpable tumor, occurring in this order of relative frequency. The onset of the vomiting is usually sudden. The mother can usually state the time. It may be initiated by nursing or the taking of a cathartic. It is often projectile, persistent and unresponsive to ordinary treatment. The vomitus usually contains no bile though a few cases have been reported in which there was bile. Hyperchlorhydria may be present. Retention of stomach contents is demonstrated by passage of the stomach tube. In consequence of the persistent vomiting other symptoms follow, such as deficient defecation with starvation stools, progressive emaciation and sinking in of the abdomen, but with bulging of the epigastric region. The onset and character of the vomiting is a very important symptom and is almost invariably present. Visible peristalsis is said to occur in about seventy-five per cent. of the cases. The wave begins in the left epigastrium underneath the costal margin and travels slowly toward the right. It may have a duration of about thirty seconds and ends in a stiffening or contracture of the stomach wall somewhat resembling the uterus in labor. The waves are best elicited during or after nursing and do not entirely disappear during sleep. This symptom begins to disappear as the child begins to gain in weight. Hess has seen visible peristalsis in classical form where neither clinical history nor picture of real stenosis were present.

Palpable tumor is estimated to be present in about one-fourth of the cases. The firm cylindrical tumor is felt to the right of the vertebral column and midway between the umbilicus and costal margin. If the element of spasm is marked, the tumor may be felt to relax under the palpating fingers. However, the degree of hardness, and permanency does not give a proper idea of the degree of stenosis and should not be used as an indication for operation. Upon removal of stomach contents with the tube, large quantities can always be obtained in four or five hours and in exceptional cases up to ten hours, unless vomiting has emptied the contents previously. Hyperchlorhydria has been found in some cases and achylia gastrica in others. The pepsin and rennet ferments have not been found below normal.

Diagnosis.—Attention should be given to a scrupulous examination of the stomach in a well nourished infant six weeks or under, which, while taking the breast or afterwards exhibits signs of gastric distress, vomits continuously and often in a projectile manner. Some of the less frequent signs and symptoms such as palpable tumor or visible peristalsis may be present and thus aid in the diagnosis. Withdrawal of the stomach contents four or five hours after nursing will show retention if vomiting has not been too severe. The passage of Hess's duodenal catheter becomes a great help in determining the degree of stenosis. Thus far the true hypertrophic stenosis only has been discussed, but in the final diagnosis the degree of stenosis, and as far as possible the element of pyloric spasm whether alone or superimposed upon a hypertrophy, must be determined and it is here the Hess catheter becomes of value. The catheter is passed through the esophagus into the stomach until it meets the pyloric obstruction. If the pylorus is patent and the stenosis due largely to spasm, there will finally be a giving way and the tube will then pass into the duodenum. If there is a rigid hypertrophied pyloric ring the catheter cannot pass. Then a diagnosis of congenital hypertrophic stenosis of the pylorus of high degree becomes practically certain. Upon the relationship of hypertrophy and spasm the authorities differ. Some do not believe that spasm plays much if any role in the true Hirschprung type. Others believe that whatever the final anatomical result, the initiation of the whole process was by spasm. Others, notably Holt, believe that spasm is always superimposed upon a hypertrophy. There are proofs that spasm of the pylorus may produce the symptoms of stenosis without hypertrophy. Whether spasm plays a role in the cases of hypertrophy, is not such an important point if only the degree of stenosis permits of determination.

The x-ray studies are more apt to mislead than to be of value unless studies are made with reference to the position of the catheter before and after it has passed the obstruction.

Prognosis.—The outcome of any given case will depend largely upon the degree of the stenosis and also upon the early recognition of the condition with immediate institution of the proper relief measures that are indicated. In the hands of Richter, a surgeon, there were nineteen recoveries out of the twenty-two cases operated upon. Holt in a series of fifty-five cases lost 55 per cent. Lewis and Grulee report five recoveries out of six cases operated upon.

Treatment.—The treatment will also depend upon the degree of stenosis for its guidance. Many cases have a tendency to recover without radical interference of any sort. The medical management should be directed toward allaying the irritability of the stomach and lessening of vomiting by stomach washings and regulation of the feeding and as the tolerance of the stomach increases, to gradually increasing the amount of food. It is most likely that wherever the duodenal catheter can be passed, medical treatment will suffice.

An operation should be performed if the child is emaciated and does not respond within a few days to medical treatment. When the duodenal catheter can not be passed and emaciation is rapid, surgical measures must be instituted. Also if the vomiting persists in spite of all medical treatment, surgical interference is indicated. The various surgical procedures are limited to three, viz: Anterior and posterior, gastro-enterostomy and pyloroplasty. When the condition of the child is not too precarious most surgeons prefer posterior gastro-enterostomy, which of course, should be performed with marked rapidity.

In the cases which have been successfully operated upon by any one of the above methods and the child has come to autopsy for some other reason at a later period, the thickened pylorus has remained practically as it was and non-func-

tionating. Lewis and Grulee have recently reported such a case which lived and thrived for about 280 days after operation. There was no diminution in the thickness and firmness of the hypertrophied pylorus at autopsy.

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THE EFFECTS OF THE HARRISON NARCOTIC LAW AS OBSERVED IN THE JACKSONVILLE STATE HOSPITAL.*

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In reviewing the literature I do not find any statistical data showing the effect of the law regulating the sale of opium and its derivatives. Our patients come from the counties in the central part of the state, including the cities of Springfield, Decatur, Quincy and Alton. The large majority of our patients come from small towns, especially the better class of patients. It would be expected that in a charitable institution we would get a large percentage of poor and ignorant class of people, although patients are given the privilege to enter under assumed names and assured that their identity would not be made public. It being urged by the governor of Illinois that the hospitals make every effort to care for the unfortunates who were caught by the Harrison law and the judges of the various counties were instructed to send such patients to the institutions as voluntary patients.

I will give a brief history of the patients in groups, and not a detailed description of individual cases, except a few special cases which I will describe more definitely and give part of their history. This report is limited to cases admitted during the first two and one-half months after the law went into effect, and as my individual care of patients was limited to the female patients of this institution I speak in particular of these and refer to the male patients later, only in comparison when summarizing the contents of this paper. As the patients mostly came alone or were brought by the sheriff we had to depend a great deal on the information given by the patient.

*Read before the Jacksonville Medical Club, May 22, 1915.

The first case was admitted March 3, 1915. She was distinctly a defective individual and was committed by the court, but released about four weeks later by the request of a friend with whom she had been staying. The second, admitted March 7, was also committed by the court, having been a patient in this institution about 20 years ago. Her trouble at this time was evidently due to her inability to secure morphin, which she had been using about a year. On March 9, we received our first three voluntary patients. There were 74 cases admitted from March 1 to May 15, including the two above mentioned and one other committed by the court. The others were voluntary patients who made application to the court and were committed as voluntary patients. The 71 voluntary patients I have summed up as follows:

Three were apparently quite intelligent individuals, but not only addicted to the use of morphin but used cigarettes and alcoholic liquors moderately, and all were distinctly of a low moral standard, for the reason that they wanted to be or as they said, did not choose to be otherwise. Two were single, immoral in character, one had two illegitimate children, the other had one. Ten were extremely poor, evidently of low moral standard, at least the character of most of them was very questionable. Their clothing and body in a filthy condition when admitted. Several of them had many pediculi capitis. One was sentenced to jail for 60 days for selling whisky. She was fairly intelligent. She was sent here as a voluntary patient until she got over the worst of her trouble and then returned to the jail. One was a defective girl, less than 11 years of age. Two were colored and also quite ignorant. Sixteen of them were apparently intelligent, most of them clean when admitted; actions quite variable, history very unsatisfactory. Some of them very much confused and in poor health when admitted. Improvement very slow. Some came under assumed names. Most of them very troublesome and fault-finding. Some acted as if they should be able to buy the earth for a $5.00 bill. Twenty were a fair class of hard working people. Most of them apparently began using the drug for some real physical pain; the majority of them apparently not knowing what they were using at first, and later began buying the drug at the drug store. Eighteen were of a fair

social standing, better educated than the group above, and all gave a feasible excuse for having become addicted to the use of the drug. About half of them were extremely nervous, hard to please, wanting special attention in every way possible, although they seemed to try to be agreeable. The youngest was a child of not quite 11 years, the oldest 82 years. The average age when admitted was 39 years. The lady 82 years had used morphin 45 years. The average number of years the entire group had used morphin was 13 years. The average age when they began using the drug was 26. Most of the cases used morphin straight, two used heroin tablets, size not known, about 40 tablets daily for each one. They were sisters. One used morphin, ¼ grain and atropin, 1/50 grain, 10 hypodermic tablets, daily. Two used gum opium and two laudanum, one paregoric, and one had used heroin but changed to morphin. None used cocain.

It is interesting to note some of the family relations of various patients admitted. In one group we have seven. Only five were blood relation. Three sisters and two children. The grandmother who died before the law went into effect had used morphin for many years and died at the age of 84. She has four living children, ages 60, 56, 44, and 40. Sometime after the birth of the second child the mother began using morphin and consequently the two younger children became addicted to the use of the drug in utero. Both were patients in this institution and each had one child who was a patient at the institution at the same time. Their older sister was also a patient here but she began using morphin at the age of 34, this being our fifth patient in the same family. The oldest child never used morphin, but his wife and a sister of hers began using morphin several years ago. There are other groups as follows: Two men and their wives; mother, son and daughter-in-law; two other groups of mother and daughter; two other sisters besides the ones above mentioned; a step-aunt and her niece.

The question naturally arises, why did these people begin using narcotic drugs? Twelve of them do not claim to have received the drug by prescription or 15.6 per cent. of the 74 patients above mentioned. Although I recognize my information is unreliable regarding why these people began using the morphin, I am convinced that a large percentage of them began using the drug by prescription, a large number of them mentioned the name and address of the physician who first gave them morphin. One patient states that the physician furnished her with morphin for three cents a tablet. She had used the drug moderately for 17 years. One patient states that the physician gave her medicine for pain in the abdomen, three or four powders daily, and continued giving her these powders ever since, making them a little larger later. She said by the use of the powder she seemed to improve and she took them regularly, always being prescribed and put up in individual powders by the physician. When she didn't take them she felt worse and after she had taken the powders for over a year she said that she told the physician that she believed that medicine was getting a hold on her so she could not do without it. She said the physician told her that after she got stronger she could quit using it. About March 1 he informed her he would have to quit giving her the medicine and advised her to discontinue the use of it gradually. She was furnished powders until the time she came to the institution. I could site other similar cases which would indicate that the medical profession is responsible for some of these patients becoming addicted to the use of morphin.

There are many conditions for which the drug was first used; pain following operations was the cause given by eight of the patients, this being the largest number assigning the trouble to the same cause, being 11 per cent. of the 74 cases. We have about an equal number who have had major operations, but who did not begin using morphin at that time. The next most frequent cause mentioned was stomach trouble; third, female trouble; fourth, rheumatism. Other conditions mentioned, abscesses of the breast, nervousness, injury by a fall, bowel trouble, miscarriage, sick headache, typhoid fever, asthma, peritonitis, neuralgia, and toothache, neuralgia of stomach, change of life, "misery" in side.

There seems to be a general opinion blaming the individual for continuing the use of the drug. Probably in many cases they do form the habit without much thought, but in many cases they use the drug thinking they will quit when they get to feeling better, and they gradually become slaves to the habit and have not the will power to stand the pain and

discomfort due to the withdrawal of the drug. Although they make more noise and act worse when the physician is near, I am convinced that the pain is terrific and very few, if any, who have become fully saturated with morphin could withstand the withdrawal of the drug if it were within their power to get it. For instance one of the best appearing patients we had was very determined not to complain; she never made a complaint until about 52 hours after the withdrawal of the drug and then she came to the examining room and begged, then demanded me to give her some morphin, saying she could not stand it through the night, that she would break the medicine case if I did not give it to her. When told that she could not get to the case and if she did there was no morphin there, she continued begging in a pitiful manner.

The symptoms in all the cases were more or less variable yet quite similar. I will give the usual symptoms of cases who have used the drug quite regularly and heavily, the drug being discontinued at once on admission. The usual case begins to get nervous 18 or 20 hours after their last dose of morphin. A few hours later they begin feeling very nervous and nauseated, complain of pain and discomfort about the abdomen, later nauseated and vomiting, sometimes in a few hours, often several hours later. Besides discomfort about the abdomen they all seem to have a psychic disturbance which is referred to where they had trouble years ago, often in their operative scars. The nausea and vomiting usually lasts from about 24 to 48 hours, sometimes longer. The diarrhea generally ceases about the same time but sometimes continues longer and needs special attention. None of them sleep much after the first night for several nights. Their expression is one of extreme agony and they describe their discomfort as excruciating pains throughout the abdomen and sometimes also in their limbs with general aching all over their body. Several of them have severe major convulsions. Some of them pitch themselves head-first from the bed to the floor with apparent suicidal intent. Nearly all of them have their knees and elbows rubbed until they are inflamed from turning about their bed. One patient had marked tonic contractions of the muscles of her extremities, her fingers and toes being partially flexed and her whole body rigid, her pulse very full but rapid. Her whole chest jumped with each heart beat, the patient saying she felt like her chest was being crushed. I was called to see her about 6:00 a. m., and she was immediately put in a continuous bath and she began improving in twenty minutes and in one hour was fairly comfortable except discomfort about her chest, which she had had for two days. On account of the condition of her circulatory system she was given tr. digitalis at once. Five or six hours later she was comfortable and had no special trouble afterwards, the digitalis being continued for several days. After two or three days from the onset of their misery they generally feel quite easy but nervous and sleepless, and for several days have more or less pains at night. The most of them sleep fairly well after four or five nights and are able to take nourishment better and generally want to go home; within ten or fourteen days nearly all of them feel quite well. On account of being voluntary patients we are unable to keep them as long as we should. Most of the later cases we received had reduced their drug before coming, several of them entirely out for a few days. Although their symptoms were not so severe they were similar to the others in a milder form, not quite so sick, but more nervous on account of the gradual loss of the drug, with no appetite and loss of sleep and I think as a rule were in a worse condition one week after admission and further improvement more slow, than the others who had the drug taken from them all at once. We have a history in several of the cases where there was a cessation of the menstrual periods for many months, and sometimes years after they began using the drug.

The treatment was altogether symptomatic and as above stated, withdrawal of the drug at once. In one case I considered it necessary to give her some morphin one night only. She was in extremely poor health when admitted, arteries very sclerotic, and had three severe convulsions the second night after admission with only a slight intermission, another about the time she was given the morphin and two other lighter ones later during the night. She recovered and is still in the institution at the close of this report, May 15, 1915, and is in better health than she had been for a year previous to admission.

Most cases were given a cathartic when admitted. Some were not and the vomiting and bowel evacuation were about the same in either

case. All were given a gastric tonic, some a little bismuth and soda. I gave them a mild laxative digestive mixture, as they began to improve. The one thing which gave the most relief was the continuous bath. On account of our bath equipment not being sufficient to care for our regular insane patients and the large number of morphin cases, I could not use the bath as much as desired. Many of the patients begged to return to the bath tub; some of them though distinctly benefited by it did not like to take the treatment. Most all complained of the neutral pack, especially during the worst stage.

I wish to say a little more in favor of the immediate withdrawal of the morphin in contrast to gradually decreasing the dose. The cases with gradual withdrawal become nervous, appetite poor, lose sleep and consequently recovery is slower and it takes much longer for them to build up after the drug is entirely withdrawn and in an institution where we receive them voluntarily and have to release them by their own request and cannot keep them long enough, I believe we can release them in much better condition than if we reduce the dose gradually. Some of the people fear they will die. We try to guard against that by watching the cases carefully. I was only alarmed in two cases—one as above mentioned got morphin and the other one also mentioned above was given continuous bath. We have had no deaths and none at present in serious condition.

The treatment that is most important depends on the general practitioner after they are released from the hospital. If the patients are released in good condition and they go out and are given morphin even though it is only a few doses, it is sufficient to upset the individual and bring back the craving for the drug. We have two cases that were readmitted after they had been discharged from the hospital. One of them was returned in about the same condition as when she left the hospital because her family and her physician would not permit her to have any morphin. The reason for her return was because she left the institution too soon, was extremely nervous and could not endure the surroundings and responsibilities at home, failed to sleep, and improper care caused her to have quite severe pain and discomfort, probably due to digestive disturbances. A physician was called to see her and instead of giving her morphin to tide over her present condition she was advised to come back to the institution and remain until she got better. The other was taken out by a court official to attend a trial at which she was a witness. According to her statements she was given morphin by a physician on request of the legal authorities so that she would be stronger to endure the trial. After the trial was over she was released. Being an individual subject to an occasional drink of alcoholic liquors and unable to get morphin she resorted to the use of whisky and was intoxicated when readmitted. Whether or not she would have used alcohol if she had been kept away from morphin after she left the institution, I am unable to determine, but I am certain that the worst thing that can be done to these people, especially the ones who are so well pleased to be able to get along without morphin, is for the physician to prescribe medicine containing any form of narcotic drug. The patients following the withdrawal of the drug are left with digestive systems in a condition to be easily upset, and therefore they need proper regulation of diet, with the administration of such digestive or general systemic tonics as is indicated in the individual case.

As to the future of these patients, I can only judge by the cases I have been able to observe. The ones we have kept the longest were gaining rapidly when they left the institution. Patients previously admitted to the institution as insane, but also subject to the use of morphin have improved in their physical condition and in a few months show practically no effect that could be attributed to the use of morphin.

In conclusion: From March 1 to May 15, 1915, seventy-four female patients were admitted to the Jacksonville State Hospital; three committed by the court, seventy-one voluntary patients. During the same time there were thirty-nine men admitted; one regularly committed, thirty-eight voluntary, making a total of 113 cases. During March there were sixty-two, twenty-one men and forty-one women. April, forty, fourteen men and twenty-six women, and the first half of May only eleven, four men and seven women, showing a gradual decrease of the number of cases admitted, almost twice as many women as men, and about the same proportion each month.

Eighty-five per cent. of the women claim to

have received the drug by prescription until they got to using the drug. Over 50 per cent., history quite reliable, would show that the indiscriminate use of morphin by the physicians is responsible for a large percentage of our morphin habitues. A larger percentage of the men began using the drug without prescription.

Treatment: Immediate discontinuance of the drug, catharsis the day admitted, hydrotherapy, preferably continuous bath, and other remedies as indicated in the individual case, with a mild laxative digestive tonic during convalescence.

EMPYEMA, THROMBOSIS AND EMBOLISM WITH SUDDEN DEATH FOLLOWING LAPAROTOMY. CASES REPORTED.*

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Complications of laparotomy are by some authors classified in order of frequency as follows: Shock, hemorrhage, infection of external wound, peritonitis, intestinal obstruction, pneumonia, bleeding of alimentary canal, thrombosis and embolism. Empyema may be placed here although the order in which it should be named may admit of some doubt.

The theme is such a broad one that we have not the time here to consider it exhaustively. Only two of the complications of celiotomy will engage our attention here, and these I have chosen because of recent experience with them, namely, empyema of the pleural cavity, thrombosis and embolism with sudden death. Embolism and thrombosis are here considered clinically as one.

Empyema of the pleural cavity has followed operations high up in the abdomen, as for example gall bladder, liver or kidney abscess. In short septic processes requiring operation in juxtaposition to the diaphragm produce probably a large number of these complications. At any rate one would think such to be the case because of the greater absorbing faculty of the upper peritoneal regions. The extension may be direct or by the way of the lymphatic and the vascular systems. The apparent relation of tonsillar disease to focal infections elsewhere in the body has certainly been observed by many. The permanent relief from pain in the appendiceal region after complete removal of the tonsils and adenoids in patient 20 years old, was my observation in the year 1912. At first it seemed a coincidence, but when over two years later the patient informed me of the absence since the operation, of the former symptoms I began to think that in this case the real trouble maker had been removed, although at the time the tonsils were removed because they caused local trouble. It is of interest to here note that in one of the cases reported below, the patient primarily had an attack of acute tonsillar infection. There is nothing new in these observations, but they are stated here to all the more vividly direct our attention to the possible avenue of infection sometimes overlooked.

Considering the infections of the serous cavities, there is always the probability that they have antecedents, such as simple pleurisy. This is particularly the danger in young adults and children. Hirana in the Hozu Hospital of Japan, reported 118 cases of empyema from all causes, 93 of which occurred in children under fifteen years of age. It occurred on the right side 71 times as against 47 on the left.

Gage in the *British Medical Journal* of April, 1907, reports two cases in which suppuration in the thoracic cavity followed shortly after an attack of appendicitis.

The first case was a man 45 years old, with signs and symptoms of effusion in lower part of right chest. Pus was evacuated, having a distinctly fecal odor.

The second case was that of a child six years old. An appendiceal abscess was opened, the appendix removed, wound drained. There was no evidence of abdominal infection and the patient progressed nicely until the third day, when right sided pneumonia developed. One week later all signs and symptoms disappeared, patient sitting up, when the temperature returned associated for the first time with abdominal pain and tenderness. The child died 31 days after the occurrence of these symptoms. The autopsy revealed bilateral empyema with an abscess in the right lung, and a general suppurative peritonitis chiefly noticeable in the upper part of the abdomen. The region about the appendix was thoroughly healed and not even infected. He cites another case in which the left side of the thorax was primarily involved from the extension of an subphrenic abscess on the left side. Five days after the onset of the disease the patient was operated on and a perforated gangrenous appendix removed. The outcome of this case was not stated.

*Read before the joint meeting of the McHenry, Boone, Kane, Winnebago and Stephenson County Medical Societies, at Rockford, Ill., Feb. 9, 1915.

Two cases have recently come under my care:

Case 1. Edward G. Aged 17 years. On Dec. 19, 1913, the patient was found with the usual symptoms of appendicitis. Operation was advised. The parents were undecided. On the following day we had counsel. The diagnosis was concurred in, and an operation, after a little waiting, was advised. The patient was taken to Sherman Hospital in the ambulance. Blood count showed marked leucocytosis. On the same day, Dec. 20, under nitrous oxide gas, oxygen and ether, a large abscess containing a large gangrenous appendix was opened. I removed the appendix. A large fecolith had sloughed through. Drainage. The temperature dropped. Five days after the operation patient had epistaxis. On the sixth day the temperature began to rise; respiration averaging 22. On the eighth day epistaxis; afternoon temperature 103 with morning remissions. Widal negative. Tenth day at noon temperature by mouth 104, pulse 116, respiration 32, pain about the wound. On the twelfth day temperature again receded, urine negative. On the next day a second widal proved negative but doubtful. The temperature dropped to near normal on the fourteenth day, no cough, respiration 26, pus revealed by aspirating right thorax. The pus was of the same character as that in the original abscess, i. e., the colon bacillus predominating. The sixth rib in axillary line was resected, pus slowly evacuated, and the cavity drained. Up to this time there was no cough, no complaint of pain in chest, no bulging of the interspaces. In spite of free drainage the temperature was slow to subside. About the twelfth day the temperature being nearly normal, the pulse and respiration, however, remained considerably above normal. By this time the patient had the second skin eruption, urticarial in all its manifestations, lasting each time only a few days. On account of the fetid odor of the chest wound, it was lightly irrigated with Thiersch's solution. The abdominal wound was completely healed by the twentieth day. An x-ray taken of the whole chest showed a cloudy or light area on the right side at about the junction of the lower with the middle lobe. Under nitrous oxide and oxygen gas the wound was explored with the gloved finger and the pus sack in the lung tissue nearly opposite the drainage opening broken. The character of the pus was thick, viscid grayish yellow. Wilson tube inserted. The patient was for a time after the rib resection made to blow the water from one bottle to another several times each day. The patient made a good recovery in about three months. Naturally a part of the lower right lobe being destroyed there is a defect. The movements of the lung and its capacity are nearly normal, as near as can be determined by the usual tests. In getting the history in this case the interesting fact was disclosed that one week prior to my first visit the patient had an acute attack of tonsilitis.

Case 2. Referred by Dr. Frank Maha, who kindly furnished the clinical history. Male, aged 7 years; poorly nourished. On May 7, 1914, the patient was taken with chills, and complained of sore throat. In 24 hours pain in left hypochondrium radiating to the umbilicus, sharp shooting in character causing the child to cry out; vomiting several times; constipated. Temperature 102, pain continued to increase in severity; knees flexed. In 48 hours the pain localized over McBurney's point. Diagnosis, appendicitis. Operation within a few hours. Upon opening the abdominal cavity a stream of thin serous slightly creamy fluid escaped; general inflammatory condition of appendix and surrounding tissue. Temperature 99 on the third day, patient doing well. At the end of ten days the temperature began to rise. Morning temperature 99, evening 103; slight chilliness, some diaphoresis, pain in lower left thorax; a slight hacking cough. This condition lasted for a week, at the end of which time slight dullness developed over left lung, moist rales, no bulging. On May 18, the chest was aspirated, and pus found; diagnosis, empyema. The patient was at once prepared, and the sixth rib resected, releasing about a half-pint of creamy pus. The cavity was drained with a double tube. Marked improvement followed, the temperature falling. Drainage tubes removed and the temperature was normal at the end of three weeks. Patient made a complete recovery and is now well and robust.

Reverting now to the subject of thrombosis and embolism, we find that the literature ascribes to them a mortality extremely high. Mikulicz's, in a series of 1,781 laparotomies found 143 complicated with pneumonia, and that thrombosis and embolism played some part in the casual relation in bringing about a mortality of fifty per cent.

Glynn and Knowles reported in the *British Medical Journal* of November 5, 1900, twelve hundred autopsies in which they found thrombosis occur more frequently than embolism, a ratio of 8 to 1. Thrombosis occurred eight times as often as embolism and generally proved fatal very suddenly about the third week after laparotomy. The symptoms of the two, these authors say, are practically the same. They came to the conclusion from their findings that cases of thrombosis are often overlooked because it is generally supposed that embolism only, can cause sudden death by damming up one of the pulmonary arteries. Bull reported in 1912, 118 cases of fatality, 11.7 per cent. of which showed evidences of thrombosis.

Recent literature has been considerably enriched by accounts of this interesting complication of abdominal surgery. Johnson reported a case of thrombosis of the left common iliac vein occurring six weeks after laparotomy; patient re-

covered, although empyema of right side complicated the case.

Johnson made the following observations, quoted almost verbatim:

Thrombosis and embolism occur in a pretty large number of cases, perhaps in 1 per cent. of the abdominal operations. That it occurs after appendicitis more often than any other operation. That it rarely follows operations for acute appendicitis with abscesses, peritonitis or other acute lesions. It usually follows clean interval cases during convalescence, with the general condition of patient good and wound healed by primary intention.

For reasons not at all clear it occurs on the left side of the body in all but a very small percentage of cases. It is rare before the end of the first week. It occurs as late as one month after operation. These observations relate generally to the common iliac artery. A few cases are preceded or followed by pulmonary embolism. In some cases there are no symptoms except sudden instant death. A patient may suddenly be seized with intense precordial distress and dyspnea, and that progressive heart failure may end life in a few minutes or hours.

Trendelenburg reported a series of thirteen cases of pulmonary embolism in all of which surgical treatment was not successful. I found two cases reported elsewhere where surgical intervention removed the obstruction but patients died. I found no case of pulmonary embolism where operation was successful.

A case of sudden death:

In a female, aged 30 years, referred by Dr. Thos. Macauley, we witnessed a calamity, the result, as we believe, of pulmonary thrombosis or embolism. Patient was operated on for the removal of the appendix and both tubes. It was a surgically clean case, no free pus being present. The patient stood the operation well; saline, by the Murphy method, was given. Her condition up to a few minutes before her death was all that could be desired; she was making a splendid recovery. On the sixth day after the operation I happened to be in the hospital in the evening. The patient was feeling fine, enjoying a glass of milk. No sooner had she finished with her repast, when she gave a loud shriek. I was called at once by the attending nurse, and saw the patient within a few seconds, found her clinching her chest with both hands, dyspneic, cyanotic, face contorted, shrieking at short intervals. The pulse became rapidly weaker, irregular and stopped. The patient at no time previous to the operation showed any cardiac lesion. There was no autopsy on this case.

Bush in the *Deut. Med. Wochenschrift* of July 22, 1909, reports on this subject among other things as follows: During four years 878 fatalities out of 9,727 surgical patients in Korte's series in Berlin, 22 of which were sudden deaths, and that the symptoms indicated pulmonary embolism. Twelve of the 22 sudden deaths occurred instantaneously and in seven of these examined, embolism was found in four. Incidentally the interesting fact was revealed that the findings in the very sudden deaths were similar to those found in the more protracted cases. In ten other patients the symptoms of embolism lasting from ten minutes to three hours before death were present, and autopsy disclosed embolism in six cases.

Bidwell in the *Practitioner* of February, 1909, as quoted by Gordon says: "Most cases of supposed pleurisy and pneumonia occurring within one to three weeks after abdominal section are probably embolic in origin."

What prophylaxis, if any, have we?

Bidwell states that we should avoid favoring thrombosis, and while advising a free use of fluids, avoid milk, calcium salts and carbonate of magnesia.

Boise considers the heart of great importance, especially its area of dullness, the weakened first sound, the greatly increased pulse rate after exertion, and other signs which in his opinion indicate heart degeneration and that when in addition to these findings the blood shows excess of calcium salts while chronic anemia exists, all the precautions against embolism are justified.

Wright, Knapp, Duncan, Illman, Boise and Krusen advocate giving citric acid in thirty-six grain doses t. i. d., alcohol and large quantities of water; whereas tobacco finds its advocate in Richards, and alcohol, oxygen, liquids and fruit juices are recommended by Howard. The early getting up of the patient is advised as a prophylactic by Mayos, Murphy, Ries, Boldt, Chanles, Gordon Currier and Brothers, whereas the opposite procedure is advocated by Tabor Johnson, who would "keep patient in bed longer, with foot of bed elevated." Still another authority says that "very few cases of embolism would occur were saline enteroclysis used more frequently after cleaning the intestines.

THE CRYING NEED OF THE HOUR.*

LAY G. BURROUGHS, M. D.,
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President of the Madison County Medical Society.

In attempting to present a paper at this time and upon the subject that I have chosen, I have done so not with the belief that I can advance any new ideas or enlighten your present day knowledge, but simply in my humble way to recall to mind what I believe is the crying need of the hour and upon which the future of our profession must and will depend.

Just as you consider your membership in your society of vital importance to you just so is the united fellowship of all medical fraternities, not with the idea of forming one large trust whereby we can corner the professional market but to establish a code of mutual justice and fellowship, for the hour has well nigh arrived, if it has not already struck, for the breaking down of all artificial barriers and the consummation of complete kinship between the members of our profession.

Just to refresh your memory a little bit, let me take you back if you will into the history of your own personal experiences, back to the days when you first crossed the threshold which you are proud to call your alma mater; there with your eyes firmly fixed upon the group of distinguished gentlemen—The Faculty—where it was your privilege and good fortune to be associated with that body of scientific men, to enjoy the ample opportunities afforded for studying the art and science that you possess today.

Well may we congratulate ourselves upon having this opportunity and after completing that course to be pronounced proficient and authorized by official signatures and seal of that institution, to assume the duties and responsibilities laid upon us as members of our chosen profession. However, let us not forget in assuming these duties the conduct that is incorporated in the code of medical ethics, to recognize not only our own rights and privileges, but those of others in the profession, to cultivate fellowship and friendship, to recognize the social interests of our own brother practitioner, to uphold the dignity and honor of the profession, to maintain ethical standards and strive to promote the interests not only of the profession but of the welfare of the public, and to treat your colleague with civility and respect.

I take it for granted that in this age there is no necessity for argument in favor of organization; all that is necesary is to consider the conditions that exist in your own midst. All trades and professions seem to have learned that it is one of the fundamental factors in evolution, one of the main springs in development and progress.

This is an age of organization, the lawyers have their association, the preachers have synods and conferences, the press has a mighty association, the working men wield their union as weapons of defence against oppression, by their means they insure for themselves and their fellows a living wage. Even the barbers, the painters, the retail clerks, yea, all lines of trade, have their organizations through which they dictate their price and terms to the public so much so that you in your locality, hesitate to patronize non-union labor for fear the unionized league, through their representative, would demand an explanation, and even threaten to boycott your practice, if you did not recognize them. Is it not time then, my colleagues, that we should unite for mutual protection not only for good fellowship, but to make our profession successful financially, and to protect our brother across the street?

To the doctor, after all, money is one of the indispensables. He cannot live because people love and respect him. He cannot live even in the consciousness of superior professional ability and skill. He must sell himself for money and get the money if life is really to spell success for him. Sounds sordid does it? But it is true and the sooner every one of us learn its truth the happier we shall all be in the end.

The average doctor earns enough money, the trouble is he does not get it, his patrons have gotten into the bad habit of taking it for granted that his pockets are lined with the precious coin and that really he does not need to be paid, at least only rarely! They have to pay the grocer, the tailor, and the undertaker; they have dimes for the nickle shows and dollars for the theater, but nothing or but little to defray the expenses of bringing baby into the world.

Is this picture overdrawn, has not this condition existed in generations past, does it not exist

*Read before a joint session of the Greene County, Jersey County and Madison County Medical Societies, at Godfrey, Ill., on June 4, 1915.

today? I dare say there are those here today who could bear testimony to this fact. Let them return to their offices and give you a list of every account, where the service was actually and faithfully rendered without financial return, and I believe you would be skeptical enough to say that figures lie. Thus the failure or success of the doctor, analyzed, is a matter of cash, the finished product of the treasury.

Our profession, noble and grand as it is, after all is only a business through whose channels we work for our livelihood, and those dependent upon us, why not then strive to make it a successful business? Why should we not demand that which is right and lawfully ours?

The doctor who looks closely and carefully after his collections as he should, persistently following the people up until he gets his pay, not only is enabled to pay his own accounts promptly, thereby retaining the good will and respect of creditors, but he can keep up a good appearance, provide himself with the best medical text-books and increase his professional equipment so as to keep abreast with the progress of medicine, all of which attracts the eye of observant people. These are conditions that exist today and conditions that we must in some measure meet.

This then brings us to one of the essentials of efficiency in medical organization, namely, cooperation. This calls for union in its fullest sense, union in efforts, of sympathy and of interest. It calls for whole-hearted assistance, not lip service; it means the obliteration of petty jealousies and quarrels and the inauguration of an era in which the success and honor of one becomes by reflection the pride and glory of all.

I know of no means of maintaining such a spirit of union more effective than the regular attendance of the meeting of the local medical societies. The frequent meeting with one's fellows serves to acquaint us with each other's follies and peculiarities, be they strong or weak, it aids in smoothing off the sharp angles and destroys the feeling of distrust in the other's capability, or suspicion of the other's motives and methods when such exist. Besides, each one of us has much to learn and may have something to teach, so it is vital to your interest, that we doctors should maintain an efficient organization.

Do we not see that we are surrounded by hostile influences, unscrupulous and half-educated pretenders brazenly proclaiming themselves especially qualified to heal the sick and afflicted, and their vile behavior throws a shadow on the reputation of the whole profession. They rob the people at every chance and the ethical doctor bears part of the blame. No single arm can cope with such quackery and bring the malefactors to justice; it requires the united and combined influence of the medical profession to induce state legislatures to enact laws to stop such practice.

I repeat there is a great work before the profession in bringing about some needed reform, and in protecting the people against the hollow shams and mockeries, that are being perpetrated upon a credulous public by the charlatans of today.

Truthfully was it said in years past, "We must educate or we must die," and this certainly applies to conditions of today. Because of the indifference on the part of the profession to educate the public mind, and the lack of close professional ties, stronger bonds of fellowship, we have seen spring up around us unreasonable pretenders, irresponsible cults and irrational systems, that have deceived the indiscriminating public by their chicanery.

How many of you have witnessed the medicine man with his accompanying comedians stationed on the streets before your own eyes and there, with his gift of gab, induce the illiterate to purchase his nostrums guaranteed to cure all ills and lead them to believe that they have found the fountain of health only to awake later to the realization that they have been stung and that the medicine man has taken French leave?

How long, my colleagues, are we going to permit these transgressors to infringe upon our rights? Is it not possible that we could instruct our city officials along matters pertaining to the health and welfare of its citizens and encourage them to reject all, unless clothed with the proper credentials? As the time is passing, let us take some thought of ourselves. How often has it been said that there is more jealousy and ill feeling among doctors than any other profession? Granting this to be true in a large measure, yet I must say that there are physicians, who work hand in hand, always taking an active

interest in all society proceedings and there gain the confidence of each other, confidence in the other man, to feel that he will always befriend you, be always willing to assist you rather than hinder your progress. But how are you to have confidence in your brother practitioner if he will not sacrifice some of his time to meet you at your society meeting and there assume his share of the burden imposed upon him?

I say without fear of criticism that every member of this society owes something (not money) to its support. Your very presence in meetings has a wonderful influence. Jealousy and petty feelings do not exist between active members of the profession, but I look with fear upon one who is so busy that he can not leave his office five hours out of a month to attend a society meeting.

Is it not well then to remember that the old guards cannot live forever? One by one their voices are stilled, year by year their influence fades into eternity and it will soon come to pass that entirely new hands will control the helm and sail the ship. Our hope for the future lies in the loyalty and wisdom of the new members of the County Medical Society.

Considering the subject from another point of view, it appears to me that a consummation such as we have just mentioned, and so devoutly to be desired, is one worthy of not a little sacrifice of time and energy on our part. The dulcet symphonies of gentle concord are ever pleasanter than the jarring medley of strife. Efficiency then can only be secured by sacrifice on the part of each and every one of us. We must be willing to give up a portion of our time, much of our energy, and, if need be, all of our knowledge to obtain it. The sacrifice that really counts, that has an intrinsic worth, is that of wholehearted interest; the spirit that works simply for the love of work, that strives to aid for the love of aiding, taking no heed of the fact that in so doing one will be incidentally, but none the less certainly, aided.

Has any true conscientious physician ever regretted the time spent at medical meetings where it was his privilege to be associated with his fellows, and to look into the life of some noble character, whose kindly word and inspiring thought has been a guiding star, by which to steer when the storms of calamity threaten to sweep over him? He who does not share in these opportunities has been cheated of a potent portion of his armamentarium.

Let the weakest, let the humblest remember that in his daily course he can, if he will, shed around him almost a heaven. Kindly words, sympathizing attentions, watchfulness against wounding one's sensibilities, these cost very little, but they are priceless in value. Are they not the staple almost of our daily happiness? From hour to hour, from moment to moment, we are supported and blessed by small kindnesses.

We do not need to be told of our duties by the public, we realize them and must continue to meet them as we have always done. No one of us can cope with the tasks before us alone, each of us needs the other, we are wings of the same army, and, for the best results, must co-operate, consult together, hold up each other's hands, exchange each other's view points and work side by side.

Here is a big field for organization work, not on the basis of sentiment, but of genuine, practical, progressive efficiency.

To live! but just to live! No matter where;
To hear and see; to breathe God's boundless air;
To play in this great world an eager part;
To feel the strange I AM throb in the heart.
To live! 'Tis something more than plod and grind;
Life is a thing of spirit, soul and mind;
The reaching out and on of growing powers,
To change to higher forms of what is ours.

To the younger members of the profession, including myself as well, I want to say that whatever has been our success or our position in life, we owe to our forefathers. They, by their good example, and by their united efforts have given to us the liberties that we enjoy. Then does it not seem fitting that we should endeavor to pay back the debt of gratitude we owe them, by showing a willingness to assume our share of the duties imposed upon us by being prompt in our attendance at meetings? Remembering also that they once took the lead and won the victory for us. Let us also remember that we should respect and honor them, although their views may differ from our own but their experience, after all, is worthy of our consideration.

In conclusion, I want to apologize for consuming your patience upon a subject so familiar to us, and discussed by men more capable than I. But be this ever so true, there is yet more to

do and better things to accomplish. Let us then, for the future, expel from memory whatever has existed in the past, besiege the opportunities that are before us, and let our life and influence be such that this profession can rise up and call us blessed.

"Follow and honor what the past has gained,
And forward still, that more may be attained,
Hold fast the good and seek the better yet."

AGAR CULTURE MEDIUM.

An Improvement Over Older Methods of Preparation.

J. E. Huber, M. D.,
PEORIA, ILL.

Everyone who has had any experience with the making of the agar culture medium is aware of the difficulty in clearing and filtration. Many of the methods in the textbooks do not give explicit directions for the manner of procedure, consequently making it a trial for those who wish to prepare small or large quantities for their use. The greatest trouble is with the filtration, generally due to the imperfect solution of the agar.

Many advise the use of egg albumin, to be added at a later stage, so that heating to coagulation of the albumin it would incorporate the flocculent matter with it, making filtration easier. This adds to the length of the process and in many cases does not aid the conditions.

Having had more or less success with many of the older methods, experience has evolved the following short, rapid and very satisfactory method. It can be applied to a large or small batch, and anyone with ordinary laboratory experience can produce a reliable product.

Take 15 grams of good clear agar, place it in a 2,000 c. c. flask, adding 1,000 c. c. of good tap water; make a mark on the outside of the flask at the water level with a grease pencil. Allow to soak for 2 to 3 hours—one hour will do in a warm place. Then place the flask on a wire gauze and gradually heat over a burner with a wide or rose flame to boiling. This must be done carefully, so that the agar is not scorched at first. Allow agar to dissolve slowly.

Now comes the important part of the method. As soon as frothing takes place, the flask is removed and given a few whirls to break down, and replaced on the burner, this same procedure to be repeated when frothing takes place.

After a time it will be found that the agar solution will boil quietly, which is to be kept up for one hour. Add

Peptone	10 grams
Sodium chlorid	5 grams
Beef extract	2 grams

Allow to dissolve, heat to incipient boiling, neutralize with sodium hydroxide solution to proper alkalinity. Add distilled water up to the outside mark.

Have ready a funnel with a plug of absorbent cotton the size of a billiard ball; pack fairly tight in the funnel. If necessary a small glass stopper can be placed on it to hold down against the funnel.

Pour the hot agar solution toward the center of the cotton slowly, allowing the funnel to become heated, then add the rest gradually.

It will be found that the solution will run through rapidly and be of a clear transparent color. There is very little waste, only what remains in the cotton due to capillarity.

The agar is then ready for tubing and final sterilization. On setting it is perfectly clear, water-white and transparent.

RED CROSS ON TAIL LAMP.

Doctors' red cross sign may be most cheaply, simply and permanently placed by blocking out the four corners of the red light in the tail lamp with white enamel. The cross shows distinctly and clearly day and night.—*J. J. G.*

WHEN PUTTING ON NUTS.

When putting on nuts and bolts it is an excellent preventive of rust to rub on them a little graphite. When this is done you have taken out an insurance policy against sticking nuts.

WASTE OF GASOLINE.

Quite often there will be an unnoticed drip of gasoline for a few minutes from the carbureter after the engine has stopped. This is not only a waste of fuel, but it is dangerous from the risk of fire. Usually this condition is due to the float not closing the needle valve opening promptly.—*American Medicine.*

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SEPTEMBER, 1915

Editorials

THE PASSING OF EHRLICH.

August 20 marked the passing of Paul Ehrlich, one of the greatest medical scientists of the present era in Homburg. To enumerate the great discoveries due to his untiring investigation would require a review of a large field of modern medicine. But it may be said that few scientists have in their life received fuller recognition. Early attracted to the minute study of the cell protoplasm he revolutionized the theory and practice of staining tissues in his "Acid Needs of the Organism," and with his "Methylene Blue Reaction of Nerve Tissue."

To account for the facts of infection and immunity he later developed his "Side-chain" theory, which also explains the phenomena of ordinary nutrition and has become the key to unlock many mysteries both in physiology and pathology.

In 1897, under the influence of this theory he issued the "Estimation of the Value of Diphtheria Antitoxin and Its Theoretical Basis." In his studies of trypanosome infections after numerous experiments he discovered that arsenophenylglycin "would completely cure every kind of trypanosome infection in any kind of animal, by means of a single injection. Truly a therapia sterilisans magna." A continuation of the same experiments developed salvarsan and neosalvarsan than which no greater boon to humanity has been discovered since Behring's diphtheria antitoxin.

Ehrlich was born March 14, 1854, in Silesia. He was educated in Breslau, Strassburg, Freiburg and Leipzig, receiving his medical degree in 1878. From that date till 1885 he was assistant to v. Frerichs in Strassburg; 1885-1889 assistant in the medical clinic of Gerhardt, and in 1889 he became privatdozent in the medical faculty of Berlin. Assistant under Koch in the Institute for Infectious Diseases in 1890, and professor in 1891; director of the Institute for Serum Study in 1896; director of the Royal Institute for Experimental Study, at Frankfort, in 1899. In 1898 he shared with Metchnikoff the Nobel prize for research in immunity. Governments and universities vied with each other to do him honor.

Had his life been spared it is probable that the mystery of cancer would have been solved by his genius.

PROFITABLE POETRY.

In days of old when knights were bold and warriors held their sway rivals for poetic honors were fain to compete for a laurel crown. Later, when poets laureate became an official institution, the sovereign's appointee received the munificent guerdon of an annual butt of sack on the theory doubtless that the wine would stimulate his imagination and induce a flux of verse. Old blind Milton received five pounds sterling for the first edition of "Paradise Lost" with a promise of another five if a second edition were called for, But no such paltry reward suffices the modern Pegasus. Far from it! Not when facility in turning out verse is made a requisite in securing appointments as health officers. The effete East will please take notice.

In a recent Civil Service examination for the position of Director of Publicity and Education in the Chicago Department of Health one of the questions was as follows:

"Give illustrations of your own composition

regarding public health in epigram, verse or pithy paragraph."

The result of the test was a foregone conclusion of course for who but Corwin among the applicants can exude verse from every pore? Rush alumni especially will recognize his eminent proficiency. No mere annual butt of sack for his. The payroll will provide ample supplies even if he is the "butt" of satirical comment from his envious rivals. But it has ever been so since Ben Jonson wore the first official laurel.

Here is the effusion that helped to lift the prize.

The typhoid bacillus
Is waiting to kill us
In milk uninspected
And food that's infected
By hands unabluted,
And likewise polluted
By flies' dirty feet
And the dust of the street.
To 'scape his fell slaughter
Just filter the water
Before you would drink
From the tap at the sink.
Put ban on uncleanness
And banish all meanness
Of unsanitation,
'Tis the hope of the nation.

HOSPITAL PRACTICE

The following editorial by L. D. V., taken from the August number of The *Medical Economist* is timely we think, and worth republishing:

OUR HOSPITAL "OPEN DOOR" POLICY—ITS EFFECT.

The intimate, personal relation which exists between the individual patient and his doctor is one which must be recognized and reckoned with if the hospital is to arrive at that stage of efficiency which we have the right to expect in the great humanitarian system which they go to make up. This relationship is deeply rooted in the practice of medicine and individuality and the personal equation enter largely into the success of the doctor's endeavors. It is thus readily seen that where less than one per cent of a group seek to gather to themselves the fruits of the labors of the other ninety-nine per cent there must of necessity be a great gap which cannot be bridged even by the most grasping and active of them.

It is to the general practitioner that the public first turns, and that the trust reposed in them is justified is shown by the fact that but 10 per cent of our sick use the facilities and conveniences, so-called, of our modern hospitals. This being the case, how futile and useless for these institutions to fight against an innovation which must immediately confer a great and welcome benefit upon them in the increased confidence which will be given them, the harmonious and friendly spirit with which the general body of practitioners will meet them, and not least of all, the increased number of patients and incidentally the improved finances which will at once remove them from the alms-seeking and charity petitioners class into which they have but lately fallen more and more.

For the hospitals supported wholly or in part by public monies there can be no question that the public (and this includes the physicians as well, for they also pay their taxes and are included in the class of respected citizens of the state) should be allowed free access to their benefits. But the name hospital today has such fearful meaning to the average person that it is only by a process of education that this dread can be overcome, and who is in a better position or better qualified to carry on this process of education than the family doctor who has their absolute confidence?

Surely, if the state has qualified and distinguished doctors by granting to them their license to practice, the state has the further duty of keeping them efficient and to place them in the position to do the best work for the good of the people of the state. This can only be accomplished by opening the doors of the hospital to the rank and file. That is what we seek. That is what we have the right to expect.

L. D. V.

ACTIONS FOR CIVIL MALPRACTICE.

Twelfth Article.

ROBERT J. FOLONIE, LL. B.,
CHICAGO.

A fruitful ground for actions of malpractice which have a specially sinister quality, are those arising out of abortions. It frequently happens that a physician is called to attend cases of spontaneous abortion, and sometimes for after treatment of artificial abortions. Such cases, particularly the latter, should be examined with caution and treated with suspicion. It is advisable before even making an examination to insist upon the calling of some other physician into consultation so as to eliminate subsequent claims that the abortion was produced by the physician.

It is a matter of frequent occurrence that a woman producing an abortion upon herself, upon discovery of such fact by her husband, to shield herself, claims that it was produced by the physician who advised that such step was necessary for her health or life. While in such state of facts no right of action lies by the wife, for her concur-

rence would be an almost indispensable incident, yet an action would lie by the husband for loss of service of the wife, and such actions are often brought.

A much more serious question may arise if a fatal result occurs. For if suit is then brought, the matter may prove ruinous to the reputation of the physician, if he has no independent support for his statement that such act was not performed by him. What makes the matter even more serious is that in such case the physician can not testify at all. It is a rule of law that when a suit is brought against any person and the party to whom the wrong is claimed to have been done is dead, that in a suit by the administrator, the person sued can not testify at all. It can be readily understood what difficulties exist in making a successful defense.

Even in the most innocent situation it sometimes becomes very difficult to establish nonculpability and the safeguards to be taken must be correspondingly broad.

I believe that the rule is very general in the larger cities among experienced practitioners, not to examine any case where there is a strong suspicion that abortive means have been used, without having present some other reputable member of the profession, who can substantiate existing conditions.

The tendency of the law, by which is meant the expression of popular sentiment by legislative enactment or judicial interpretation, is becoming more and more stringent in dealing with those suspected of producing abortions without the gravest necessity.

As illustrative of this tendency, attention is called to the prosecution of a physician in Ohio under a recent statute of that state, making it a criminal offense to take any step in producing an abortion or preliminary to an intended abortion—unless its purpose is to save the life of the mother. Even the health of the mother shall not be considered any reason for taking such steps.

The physician administered an anesthetic to examine the woman to determine her condition. Her condition was apparently grave and the intention was to perform an abortion upon her if the conditions upon examination disclosed a necessity. An anesthetic was administered, and the examination disclosed a condition not necessitating abortive means and none were attempted.

The prosecution was predicted upon the statement of the physician that if upon examination abortion would prove necessary, he would perform it and that he could not form any judgment on the matter until the examination had been made.

The case was evidently brought to test the law and a conviction resulted. The testimony of the physician was that what he would have done in the case depended entirely upon what he found upon examination and he had formed no opinion as to what means he might use, if any.

The case is reversed by the Supreme Court upon questions of practice, but the opinion holds in substance that the law is valid and that the administration of an anesthetic is one step with a view to abortion, and if such end was in contemplation the physician is guilty of a crime, unless he can show that before the taking of such means he was of the opinion that the *life* of the patient was dependent upon such operation.

The logical effect of this opinion is that even physical examinations may not be made, having in view possible abortion, unless the physician in advance has satisfied himself without an examination, that the life of the patient is at stake.

While the law under discussion is more drastic than that in force elsewhere it is indicative of the trend of the times and the interest of society in the reproduction of kind is so necessary a preservative measure that the gravity of the results to patient and society require unusual precautions in every case where such condition is involved.

FOOT AND MOUTH DISEASE.

On August 9 a herd of cattle and several hogs were found affected with foot and mouth disease on the farm of Henry Pearson, in Wheeling Township, Cook County. August 25, several cases were discovered in Vernon Township, Lake County. On August 31 there were 78 herds affected at the following locations in Illinois:

Wheeling Township, Cook County, 23; Good Hope, McDonough County, 20; Vernon Township, Lake County, 28; Wyanet, Bureau County, 3; Ponemah, Warren County, 2; Galva, Henry County, 1; Melvin, Ford County, 1.

The 23 farms in Cook County and the 28 farms in Lake County are in the Chicago dairy

district. Close quarantine is still maintained in the following counties: Cook, McDonough, Lake, Bureau, Warren, Henry and Ford. All infected herds in the State have been slaughtered except two in Lake County. Cleaning and disinfecting of infected premises is completed in about half the farms.

Dairy inspection by the Chicago Department of Health has been discontinued in Cook and Lake Counties on account of the quarantine and it is required that all dairy products from this territory be pasteurized.

(September 3 we are advised that 101 premises in Illinois are quarantined.)

TUBERCULOSIS NOTES.

Hurried examinations do not detect early tuberculosis. If half hour does not suffice, use one or two hours if necessary. It's the early diagnosis that saves life.

It is stated that after clinical onset of tuberculosis, marked hypersensitiveness to tuberculin occurs, which diminishes as patient improves, and which fluctuates or remains stationary if he does not improve.

Two out of three cases of tubercular meningitis made complete recoveries after intradural injections of tuberculin, given in doses of a little more than 1 mg. (Muench. Med. Woch. No. 7—1915).

Fistula in ano should always arouse suspicion of active tuberculosis.

Nose of every pulmonary case should be thoroughly examined and all obstructions to breathing removed.

Every case of tuberculosis has a curable stage. Do not let it get beyond this. It requires early diagnosis.

DR. RODMAN AND "THE COLLEGE."

Why Dr. Rodman should have dragged into his presidential address some laudatory remarks about the American College of Surgeons is a mystery, but it is none the less a fact that has excited a good deal of adverse comment. It does not matter what the college is or what it stands for or what it has done or what it is going to do or what it thinks it is going to do; it has nothing to do with the American Medical Association in any way whatsoever. This college of surgeons is a purely voluntary, proprietary organization of men who brought themselves together for stated purposes; they may or they may not attain those purposes; but that too has nothing to do with the case. It seems clearly out of place to announce an intention of discussing the work of the American Medical Association and then proceed to talk about an organization which has nothing to do with the Association. And the criticism of this proceeding was not confined to outsiders; not a few members of the college itself were very free in their words of adverse comment.—*California State Journal of Medicine.*

TWENTY-THIRD ANNUAL MEETING OF THE TRI-STATE MEDICAL SOCIETY OF IOWA, ILLINOIS AND MISSOURI, CHICAGO, ILLINOIS.

Wednesday, Thursday and Friday, October 6, 7, and 8, 1915.

MEETING PLACE AND HEADQUARTERS:
HOTEL LA SALLE,
Madison and La Salle Streets.

OFFICERS

Dr. Lewis Schooler, President.....Des Moines, Iowa
Dr. Frank A. Will, Vice-President for Iowa.....Des Moines, Iowa
Dr. Clarence L. Wheaton, Vice-President for Illinois .....Chicago, Ill.
Dr. F. M. Roberts, Vice-President for Missouri..Hunnewell, Missouri
Dr. EmoryLamphear, Treasurer.....3447 Pine St., St. Louis, Mo.
Dr. Charles H. Parkes, Secretary.....Suite 1725, 25 E. Washington St., Chicago, Ill.

The 1915 meeting includes two days for scientific papers with discussions, and one day devoted exclusively to clinics.

Business meeting, October 6, at 12 M.

PROGRAM

October 6—Morning Session, 9 a. m. to 12 m.

A Case of Acute Uremia, with Complications. H. H. Fletcher, M. D., Winchester, Ill.

Appendicitis Not Conquered. A. H. Kenniebrew, M. D., Jacksonville, Ill.

Appendicitis Outside the Hospital. W. H. Smith, M. D., Kansas City, Kansas.

The Rapid Treatment of Epithelioma and Lupus. C. S. Nieswanger, M. D., Chicago.

Hodgkins' Disease, with Special Reference to Causation and Treatment. D. C. Brockman, M. D., Ottumwa, Iowa.

Habits and Drug Addictions. Wm. K. McLaughlin, M. D., Chicago.

Successful Skin Grafting. J. F. Clark, M. D., St. Louis, Mo.

The Surgery of the Aged. Walter U. Kennedy, M. D., St. Louis, Mo.

Afternoon Session—2 p. m.

Demonstration of the Muscular Actions of the Eyeball. A. C. Ragsdale, M. D., St. Louis, Mo.

Obscure Diagnoses. George S. Edmonson, M. D., Clinton, Ill.

Ectopic Pregnancy. Carl W. Wahrer, M. D., Fort Madison, Iowa.

Pituitrin in Surgery: Report on a Series of Cases, and also Experiments on Dogs. E. H. M. Griffiths, M. D., Chicago.

Fixed Dosage in Scopolamin-Morphin Anesthesia. Bertha Van Hoosen, M. D., Chicago.

Chorea Versus So-Called Healthy Tonsils. A. B. Middleton, M. D., Pontiac, Ill.

Preventive Treatment of Rectal Fistulae. J. Rawson Pennington, M. D., Chicago.

Treatment of Genito-Urinary and Rectal Fistulae. Emil G. Beck, M. D., Chicago.

(a) The Use of Phylacogens in the Treatment of Chronic Suppurative Catarrh of the Middle Ear.

(b) Subjunctival Injection of Cyanide of Mercury in Certain Diseases of the Eye. Flavell B. Tiffany, M. D., Kansas City, Mo.

Subject to be announced later. Robert H. Babcock, M. D., Chicago.

Roentgen Diagnosis of Diseases of the Alimentary Tract. M. J. Hubeny, M. D., Chicago.

Measles. Jennie W. Parks, M. D., Cuba, Ill.

Case Report. Clara L. K. Cronk, M. D., Bloomfield, Iowa.

Evening Session—8:30 p. m.

Address. A. A. O'Neill, M. D., President-Elect, Chicago Medical Society.

Address. Lewis Schooler, M. D., President, Tri-State Medical Society.

Lantern Slide Lecture on His Work in Sex Gland Implantation. G. Frank Lydston, M. D., Chicago (by invitation).

October 7—Morning Session—9 a. m.

(Intermission will be from 12:30 to 2 p. m.)

Symposium on Tuberculosis:

Glandular Tuberculosis. Frederick Tice, M. D., Chicago.

Pulmonary Tuberculosis. Edwin B. Tuteur, M. D., Chicago.

Joint and Bone Tuberculosis. C. E. Ruth, M. D., Des Moines, Iowa.

Genito-Urinary Tuberculosis. Robert H. Herbst, M. D., Chicago.

Institutional Care. George T. Palmer, M. D., Springfield, Ill.

Climatic Treatment: Lantern Slides of the Southwest, W. T. Brown, M. D., Watrous, New Mexico.

Treatment by Spengler's Immune Koerper, Case Report. Granville Ryan, Des Moines, Ia.

Law That the Doctor Ought to Know. T. C. Buckston, M. D., Decatur, Ill.

Malignant Tumors of the Appendix. Charles B. Burke, M. D., Atlantic, Iowa.

New Methods of Pyloroplasty for Congenital Stenosis (lantern slides). Alfred A. Strauss, M. D., Chicago.

The Clinical Importance of Peptic Digestion and Gastric Motility. Walter W. Hamburger, M. D., Chicago.

Goiter. Edwin B. Sloan, M. D., Bloomington, Ill.

Static Foot Trouble (lantern slides). E. P. Cooley, M. D., St. Louis, Mo.

Minor Surgical Gynecology (lantern slides). C. E. Ruth, M. D., Des Moines, Iowa.

Evening Session—8:30 p. m.

Medical Reserve Corps of the United States Army. Major James M. Phalen, U. S. Army (by invitation).

October 8, 1915.

CLINICS

Time and place for holding the clinics, if not included in this schedule, will be furnished during the meeting, by bulletin.

Rush Medical College, Wood and Harrison Sts. Surgery. Arthur Dean Bevan, M. D.

2 to 4 p. m.:

Inspection of Department of Health of Chicago, including the laboratories, with demonstrations of diagnostic methods free to the poor: Widal, Wassermann, Typhoid Immunization, Pasteur Treatment, Tuberculosis Tests, and so forth. John Dill Robertson, M. D., Commissioner of Health of the City of Chicago.

Michael Reese Hospital, 29th and Groveland Ave. 9 to 12. Surgery—Diagnostic and operative, with special attention to kidney work. Daniel N. Eisendrath, M. D.

Cook County Hospital, Wood and Harrison Sts. 2 to 4. Orthopedic. Charles M. Jacobs, M. D.

German Hospital, Larrabee and Grant Place. Surgery. Jacob Frank, M. D.

Frances Willard Hospital, 710 S. Lincoln St. 10 to 12. Surgery—Diagnostic. Fred C. Zapffe, M. D.

North Chicago Hospital, No. Clark and Wrightwood Ave. 9 to 12. Surgery—The treatment of fistulae and abscesses by means of bismuth paste. Emil G. Beck, M. D.

Post-Graduate Hospital, 24th and Dearborn Sts. Surgery. Emil Ries, M. D.

Post-Graduate Hospital, 24th and Dearborn Sts. General Clinics—Through the courtesy of Dr. Ries, all of the clinics at the Post-Graduate Medical School are thrown open to the members of the Tri-State Medical Society on this date.

Cook County Hospital, Wood and Harrison Sts. Skin. F. E. Simpson, M. D.

Chicago Policlinic, Chicago Ave. and Wells St. 9 a. m. Genito-Urinary. Robert H. Herbst.

Cook County Hospital, Wood and Harrison Sts. 9 to 12. Gynecological Clinic. Bertha Van Hoosen, M. D.

Columbia Hospital, 46th and Champlain Ave. Surgery. A. Augustus O'Neill, M. D.

Frances Willard Hospital, Lincoln St., between Harrison and Polk Sts. Harelip and Cleft Palate. Truman W. Brophy, M. D., D. D. S.

West Side Hospital, Lincoln and Wood Sts. Goiter—Five cases. Edwin P. Sloan, M. D., Bloomington, Ill.

West Side Hospital, Lincoln and Wood Sts. 8 a. m. Tonsils and adenoids. Arthur M. Corwin, M. D.

West Side Hospital, Lincoln and Wood Sts. 10 to 12. Surgery. Paul Gronnerud, M. D.

Special demonstrations in operative surgery on the cadaver every evening at the Illinois Post-Graduate School. Paul Gronnerud, M. D.

Cook County Hospital, Wood and Harrison Sts. 2 p. m. Nose, throat and ear. Robert Sonnenschein, M. D.

West Side Hospital, Lincoln and Wood Sts. 9 a. m. Hemmorrhoids and rectal fistulae. J. Rawson Pennington, M. D.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY.

The sixth annual meeting of the American Association for Study and Prevention of Infant Mortality will be held in Philadelphia, November 10-12, 1915.

The subjects to be discussed include:

Eugenics.
Effect of the economic standing of the family on infant mortality.
Infant welfare nursing in small cities, towns and rural districts.
Institutional mortality.
Midwifery conditions.
Treatment and prevention of respiratory diseases.

Mr. Homer Folks of New York is president of the association, and Dr. S. McC. Hamill of Philadelphia, president-elect for 1916. Dr. Joseph S. Neff, 801 Weightman Building, Philadelphia, is chairman of the committee on local arrangements.

The sessions will be under the chairmanship of the following:

Eugenics—Dr. Wm. F. Snow, New York City.
Pediatrics—Dr. Charles A. Fife, Philadelphia.
Obstetrics—Dr. Mary Sherwood, Baltimore, Md.
Economic Aspects of Infant Welfare—Mr. Sherman Kingsley, Chicago.
Nursing and Social Work—Miss Ella Phillips Crandall, New York City.

Public Health

PUBLIC HEALTH EXHIBIT TO BE BIG FEATURE AT STATE FAIR

Most Unique and Impressive Health Exhibit Yet Developed Will Be Shown

Places Illinois In Lead In Health Educational Work of This Kind

The State Board of Health is preparing another elaborate and unique public health exhibit for the State Fair which will be held at Springfield, Ill., September 17-26.

Last year the Board had an exhibit in the educational section which was very generally commented upon in the public press as one of the most distinctive features of the new attractions at the State Fair. It was thronged with visitors from the opening to the closing hours and doubtless was the means of accomplishing much good in behalf of sanitation and public health.

For this year's show Doctor Drake, secretary of the state Board of Health, has developed a number of new features among which are mechanical and still models portraying simple health truths in a most impressive way, a new series of health cartoons and posters, new demonstrations with short crispy talks by health experts, and, what probably will prove a very popular attraction, Shifting Pictures, an adaption of the new moving picture idea. Two new booths will be devoted to the "Shifties."

The Illinois public health exhibit in its entierty is the original production of the present secretary of the Board, and public health men who have seen it pronounce it the most unique, impressive and instructive health exhibit yet developed in this country. The general comment is that it places Illinois in the lead in public health educational endeavor and reflects great credit upon the administration under whose authority and direction it has been developed.

On conclusion of the State Fair, this exhibit will be shown in all parts of the State, in many instances under the auspices of County Medical Societies.

TUBERCULOSIS CONFERENCE.

At the request of the Governor of Indiana, Governor Dunne has appointed twenty-five delegates to represent Illinois at the Mississippi Valley Tuberculosis Conference which will be held at Indianapolis from September 29 to October 1. This conference, made up of officially appointed delegates from the entire central section of the United States, devotes itself to the discussion of the practical problems of the warfare against tuberculosis and has much to do with outlining the methods to be employed in the various states.

The delegates appointed by Governor Dunne are: Dr. George T. Palmer, Springfield, president of the Illinois State Association for the Prevention of Tuberculosis; Dr. Theodore B. Sachs, Chicago, president of the Chicago Tuberculosis Institute; Dr. Charles W. Lillie, East St. Louis, president of the Illinois State Medical Society; Dr. Charles J. Whalen, Chicago, president of the Chicago Medical Society; Dr. O. W. McMichael, Chicago, director of Chicago open

air schools; Dr. E. A. Gray, Chicago, director of the Chicago Fresh Air Hospital; Dr. John Ritter, director Rush Tuberculosis Dispensary; George W. Perkins, Chicago, director of the Chicago Tuberculosis Institute; Dr. T. B. Knox, Quincy, president of the Adams County Tuberculosis League; Dr. Jeanette Wallace, Peoria, secretary of the Peoria Tuberculosis Association; Dr. Josephine Milligan, Jacksonville, director Morgan County Tuberculosis League; Dr. F. D. Rich, Joliet, president of the Joliet Anti-Tuberculosis Society; Dr. E. M. Sala, Rock Island, president of the Rock Island Tuberculosis Association; Dr. C. B. Johnson, Champaign, president of the Champaign County Tuberculosis Health League; Dr. A. L. Mann, Elgin, vice-president of the Kane County Tuberculosis League; Jesse Lowe, Beardstown, president of the Beardstown Tuberculosis League; Mrs. Edgar Foster, Mt. Carmel, president of the Mount Carmel Woman's Club; Dr. Samuel Dodds, Cairo, vice-president of the State Association for the Prevention of Tuberculosis; Dr. P. A. Pyper, Pontiac, president of the Livingston County Tuberculosis Society; Mrs. E. R. Curry, Mt. Sterling, chairman of the Department of Public Health, State Federation of Women's Clubs; Dr. H. A. Pattison, Rockford, president of the Winnebago County Tuberculosis Association; Herbert S. Matthews, Pekin, president of the Pekin Union Department of Tuberculosis; Dr. E. W. Fiegenbaum, Edwardsville, secretary of the Madison County Tuberculosis Association; Mrs. A. L. Adams, Jacksonville, director of the Morgan County Tuberculosis League and James Minnick, Chicago, superintendent of the Chicago Tuberculosis Institute.

EPIDEMIOLOGIST WANTED FOR ILLINOIS HEALTH SERVICE

Selection to be Made by Civil Service Test in October

Open to All Medical Men

The Illinois State Civil Service Commission announces an examination for the position of epidemiologist in the service of the State Board of Health to be held October 2, 1915.

This is one of the important new offices created by act of the last General Assembly and is the first of a number of positions requiring technical knowledge of a high order which are to be filled through competitive test. Other new positions for which examinations will be held in the near future are Chief Sanitary Engineer, Assistant Sanitary Engineer and District Health Officer. Three engineering and three health officer positions are to be filled.

Incidentally, this is the initial step towards the reorganization and up-building of the public health service of the state, one of the most important moves made in health administration circles in Illinois in twenty years.

The Civil Service Commission's announcement of the examination reads as follows:

EPIDEMIOLOGIST.

Salary $200 to $400 a month. Open to men over 25. Open to non-residents of Illinois. (One place to be filled in Board of Health) Scope and weight: Training, experience and qualifications for the position, 10. The preliminary portion of the examination will be unassembled, questions on education and experience being mailed to applicants. Those who qualify will be interviewed orally at a later date. Duties include investigation of diseases of man with regard to their control and the organization of health service in communities. Must be qualified to make clinical diagnosis in communicable diseases.

STATE BOARD OF HEALTH EXAMINATION FOR MEDICAL GRADUATES.

The next examination for physicians desiring to engage in the practice of medicine in Illinois will be held at the Coliseum Annex, Chicago, October 13, 14, 15.

Application for admission to the examination must be on file in the office of the State Board of Health in Springfield by September 30.

STATE BOARD OF HEALTH WILL HAVE BRANCH OFFICE AT STATE FAIR GROUNDS.

Visiting Physicians and Health Officers Invited to Make This Their Headquarters.

Pursuing the policy of keeping in close touch with the medical profession and public health authorities of Illinois' communities, the State Board of Health will open and maintain offices at the state fair grounds during the entire period of this year's exposition, and, through the medium of the Illinois Medical Journal, the Board extends to all visiting physicians and health officers a cordial invitation to make these offices their headquarters while at the fair.

The offices will be located in the south balcony rooms of the Exposition Building, immediately ad-

joining the public health exhibit and will be open from 9 a. m. to 5 p. m. each day of the fair.

Special appointments for consultation with the experts of the Board can be arranged in advance, or upon calling the main offices in the Capitol Building upon arrival in Springfield.

BETTER BABIES' CONTEST TO BE HELD AT STATE FAIR.

Not a "Baby Show," But a Scientific Test.

A "Better Babies' Contest," a popular, yet scientific, movement to improve the race by holding up certain physical and mental standards of perfection to which every mother should aim to bring her baby, will be conducted under the auspices of the educational department of the Illinois State Fair at Springfield, September 21-23.

The contest will be open to children between the ages of one and four years who are bonafide residents of Illinois. The five tests to which the children are to be subjected will be wholly within the hands of medical experts, assisted by a large corps of trained nurses. Good looks and fine raiment will carry no weight, the only consideration being physical and mental development.

The tests will be conducted in a large room especially constructed for the purpose in the Womans' Building on the fair grounds. Particular attention has been given to sanitary and hygienic arrangements and at no time will the children come in direct contact with the visiting public, although the public may view the larger part of the proceedings through glass windows which have been inserted on two sides of the room.

Baby welfare exhibits, demonstrations of proper feeding, dressing, bathing, sleeping, etc., as well as daily popular illustrated lectures for mothers, will be held in connection with this contest.

The following women have been appointed a committee on arrangements: Mrs. Edward F. Dunne, Mrs. Frank S. Dickson, Mrs. John Dill Robertson, Mrs. Medill McCormick, and Mrs. C. St. Clair Drake, chairman.

The number of applications entered by mothers up to August 26 indicate that there will be some three hundred contestants.

The awards will consist of gold and bronze medals, and solid silver loving cups.

STATE BOARD OF HEALTH NOTES.

With a view to raising the standard for the practice of midwifery in Illinois, the Committee on Midwifery of the Illinois State Board of Health is considering the rearrangement of the examination schedule for midwives, and the inclusion of grading of candidates on education and training; also on habits of personal cleanliness. Rules governing obstetrical practice by midwives have been formulated and will be presented at the next meeting of the Board in September for consideration and adoption.

* * *

The Board desires to again call the attention of health officers and physicians to improved laboratory facilities for the bacteriologic diagnosis of diphtheria. By reason of the establishment of branch laboratories in Chicago and Mt. Vernon, much earlier reports upon laboratory findings will be possible. Examinations of terminal cultures also will be made at the branch laboratories.

All state antitoxin agencies, or free distributing stations as they are now known, have been equipped with culture outfits and addressed shipping packages which can be secured by physicians for the asking. This service is free.

* * *

Arrangements for enforcement of the new birth and death registration law, enacted by the last General Assembly, are rapidly nearing completion. Blank forms of birth and death reports, burial permits and pamphlets of instructions are now being printed. Under the new law there will be about 3,000 registrars in Illinois whose duty it will be to rigidly enforce the law. After the new blanks are distributed it will be required of undertakers and embalmers to fill out all the personal and statistical particulars required for death certificates and to take these to the attending physician for certification as to cause of death. Burial permits will be required before a body can be legally disposed of. The undertaker must secure these permits and must present them to the sexton at the cemetery before body can be buried therein. Special provisions are made for cemeteries having no person in charge. Penalties are provided for violation of provisions of the law.

The new law, a most urgently needed regulatory measure, will work no hardships on anyone and when in full force and effect will not only be of far reaching benefit to the people of the state but will remove from the fair name of Illinois the stigma of "non-registration state," a characterization which we too long have had to bear with discredit to ourselves.

Every good citizen of Illinois will assist in enforcing the law. It is for the good of the people—nothing more.

* * *

Medical colleges contributing any considerable number of students to the Illinois State Board examinations have again been notified that the pre-medical education credentials upon which candidates seek matriculation to these colleges, must be submitted to the Board at Springfield for examination and approval within fourteen days after opening of the session to which admission is sought.

The plan of examining these credentials at time of matriculation instead of at time of application to the Board for admission to examination for state license, as heretofore, not only works to the advantage of the college and oftentimes saves the unqualified student a waste of five years in medical study and much money in wasted tuition fees, but it also is a most important factor in raising the standard of medicine in this state.

Auto Sparks and Kicks

HOW TO KEEP HANDS CLEAN.

I have always been interested in the auto hints published in the JOURNAL from time to time. By taking care of my own cars, I know I have prolonged the lives of them. This, of course, necessitates soiling one's clothes and hands. Soiling your clothes may not directly interfere with your practice, while it is very important to keep your hands in good condition. The reason is obvious. I have tried all sorts of methods, both in trying to keep my hands from being soiled and also in cleansing them after being soiled. I have worn leather gloves inside of cotton gloves, rubber gloves inside of canvas gloves and various other combinations. Some things about a car are impossible to do with gloves on. After failing to keep my hands clean I have tried to cleanse them with various kinds of soaps, followed by gasoline, benzine, ether, chloroform, etc. The soap, of course, is the least injurious and gives the poorest results. The chemicals harden and dry the hands.

The simplest and most efficient method I have found is to take about a tablespoonful of ordinary automobile green soap and, without water rub it into the hands thoroughly. Place some in the palms of the hands and scratch the palm with the opposite hand in order to get the soap under the nails, then flex and extend the fingers while rubbing the soap on. In short fill all the cracks, creases and crevices with the soap and then let it dry before starting to work. By using gloves in addition to this, of course, insures greater cleanliness, yet I have used this method without gloves and have kept my hands in good condition.

Finally when you wash your hands the soap comes off last. You will find when you go to the hospital to remove that appendix your hands will be clean and soft and just as aseptic as before.

EVERETT B. WILLIAMS, M. D.

Chicago, Ill.

HE GOT IT.

In honor of a visit paid to his plant by the governor of the state, an automobile manufacturer once had a complete car assembled in something like seven minutes.

Some weeks after the feat was heralded in the daily papers the telephone at the factory rang vigorously.

"Is it true that you assembled a car in seven minutes at your factory?" the voice asked.

"Yes," came the reply. "Why?"

"Oh, nothing," said the calm inquirer, "only I've got the car!"—*Everybody's.*

AN AIR LEAK.

Sometimes the small rubber cushion inside the valve cap of the tire gets turned in such a way that when the cap is screwed down the rubber presses down on the valve core and a slow leak will result. It is well to look at the cap before putting it on.

RUNS ON PATENT MEDICINE.

A. A. Wheeler of Mitchell, S. D., found himself six miles from home with an empty gasoline tank. He ran to the next house on gas from his motor primer, and got a bottle of patent medicine which carried him two miles to a supply of kerosene on which he completed the trip into town, he declares.—*Motor Age.*

TO PREVENT SLIPPING.

On metal-to-metal clutches flake graphite is used to prevent slipping. It is often advisable to mix flake graphite with a little oil to form a thick paste. This type clutch should be treated frequently in order to prevent the metal surfaces from wearing away. If the slipping is not stopped the drum and band wear to such an extent that adjustment becomes impossible.—*Chicago Daily News.*

FOOL PROOF SPARK PLUG.

This is made by the Fulton Company, 726 National avenue, Milwaukee, Wis. Among its many advantages is the oil drip feature. The electrodes on "EKLIPS" plugs are so constructed that no oil can accumulate in the sparking gap between the points. They are "kicked up" so that the oil runs from the sparking gap to the lowest part of the electrodes, thus leaving the actual firing surface entirely clear. The illustrations show the plug compared with the general run of spark plugs on the market.

Illinois State Medical Society

EYE, EAR, NOSE AND THROAT SECTION AT SPRINGFIELD, MAY 17, 18, 19, 1915.

The Chairman: The first paper on the program, this morning, is "Trephining Versus Iridectomy in Glaucoma," by Dr. Harry Woodruff of Joliet.

Dr. Woodruff: *Mr. Chairman, Gentlemen:* I notice a number of the audience who are not interested in eye work particularly, and the audience so far is rather small. In the language of the Scripture, I will "Beseech you to hear me patiently."

(Paper read)

The Chairman: I would like to invite Dr. Arnold Knapp, our guest, to take part in the discussion of this paper and also any other papers that he wishes. I will ask him to open the discussion on this paper of Dr. Woodruff.

Dr. Knapp: *Mr. Chairman, Gentlemen:* I am entirely in accord with Dr. Woodruff's conclusions, and I think everybody must reach that conclusion, if he has followed the trephining operation with any degree of care. I would like to ask him a question. If I understood him rightly, he said that trephining was not indicated in the glaucoma, which follows cataract operations in which the lesions is probably the result of an adhesion of the capsule or disease of the iris. This is a condition which has interested me always and I have found it an extremely difficult one to meet by any method of operation.

As for the trephining operation itself, I think the pendulum of enthusiasm is bound to swing back and I don't think anything will bring any operation into quicker disrepute than the wholesale way in which it was applied to practically every case, and I think, to a great extent, Dr. Elliot's teachings have been responsible for that. It seems to me that we are perfectly justified in realizing that trephining should not be done in certain cases and under certain conditions, and the one that has particularly impressed itself upon my mind is that a trephining should not be done if there are any inflammatory symptoms. It has struck me that these eyes that were subjected to the trephining operation remained red; that there was a great deal of iritis always developed and that the condition was, I think, often made very much worse, although the tension was hoped to be reduced.

I think that one can say that the treatment of glaucoma can briefly be expressed as follows. In the acute attacks, there is absolutely no reason why the old iridectomy should not be the proper operation, that is, of course, if it is properly performed. If you have a case in which you can assume that no organic adhesions has occurred, I think the iridectomy will give you excellent results. In fact, I can limit the trephining operation to the cases in which you have advanced congestion in the eye and in which you can take it for granted that an organic adhesion has taken place; in which your iris is degenerated; in which your optic nerve is deep cut and your field contracted. In these cases, I think the trephining operation is the safe method of operating and I think the dangers which we have found, for instance, a too extensive cystoid scar, at least in many cases, were due to the fact that I used too large a trephine. I used to use a two millimeter trephine and I get along now with either one and a half or one. In using the smaller sized trephine, I think the results have been more satisfactory.

I am very much obliged to be able to say a few words on this very important subject and I want again to congratulate Dr. Woodruff on his excellent paper.

The Chairman: I will ask Dr. Wood to discuss the paper of Dr. Woodruff also.

Dr. Casey Wood: *Mr. Chairman, Gentlemen:* The question of Dr. Woodruff's paper is the consideration of the pathological conditions that go under the name of glaucoma. I have read many papers and I have heard many definitions on the subject, with the assumption that glaucoma is a pathological entity, definitely described by that one word, "Glaucoma." Of course, we all know that it presents many aspects and the consideration of the particular form of relief for this disease seems to be entirely a failure unless the writer tells us very definitely what kind of glaucoma he is talking about. I think we cannot improve upon the good old clinical division of glaucoma into, perhaps, three parts. The first is that form of glaucoma in which there is an excessive amount of secretion, or it may be excretion, from the eye; secondly, that in which the exit of this excretion from the eye is pathologically interfered with, and the third is that in which we may have both an excessive amount of secretion and an interference with the excretion.

Now, last year, at the congress at Oxford, practically the same comparison of iridectomy with the LaGrange operation, the Home operation and the Elliot operation was made by a couple of men who had large opportunities for doing operations for glaucoma, and there, much to the surprise of these men themselves, as shown in the report, they found that iridectomy would hold its own as against these other operations in the forms of glaucoma there met with. Iridectomy was done in the chronic simple forms and in most of the secondary forms of glaucoma and it was found that quite unexpectedly to themselves, iridectomy is not an operation to be superseded by trephining or the newer operations.

I think that the question of iridectomy, as against any of these others, should be considered from the standpoint of the possibility of draining through the iris tissue itself. An iridectomy leaves the tissues of the iris open to observation. The cut edges of the iris do not heal. We do not have a covering over, as we usually have in most of these cases, of anything approaching connective scar tissue. The consequence is that the iris remains open. If the particular iris is in that condition so that observation is possible, and if the observation is sufficient to relieve the glaucoma, all well and good. If it does not, then we have a failure of that operation of iridectomy.

The father of the gentleman who has just spoken to us, as I remember, insisted that some of the most brilliant results by iridectomy were to be had in the secondary glaucoma, following cataract extraction, especially in the discussion of that question of cataract with or without iridectomy, and he always added that too much was said about the seriousness of the secondary glaucoma in cataract where iridectomy was done, because all one needed to do is to do that iridectomy and that the results were very good. I think that is borne out by the experience of most operators.

I am very glad that Dr. Woodruff brought this matter up because I perceive, as I think all of us do, that trephining would eventually occupy the position which it deserves, and that it is not applicable in all cases of glaucoma and that it is not necessary in all cases of glaucoma and that iridectomy is an easier, safer and better operation than any of these forms of sclerectomy.

The Chairman: The paper is open for general discussion.

Dr. Harry S. Gradle: A year ago, at a special meeting, I voiced the opinion that the trephining operation, as proposed by Col. Elliot, was rather to be considered as an operation of last resort, rather than the operation that we shall turn our attention to in operative cases of glaucoma. Since then, I have had the satisfaction of having this statement confirmed by several men in literature and in private discussion. Dr. Parker of Detroit, last year at the Academy meeting, in Boston, made the same statement. In the last number of the *Clinical Journal*, Oxenfeldt, basing his statement on his rather large experience, claimed that trephining was an operation of the last resort; that after other things had been attempted and had proved unsuccessful, that then and only then are we justified in exposing our patients to the continued danger of infection that follows the trephining operation. It seems to me that we should attempt the trephining operation in the acute and the chronic forms of inflammatory glaucoma only as a final resort, when one or more iridectomies have been unsuccessful, and the idea of using the trephining operation as a proper operation in inflammatory glaucoma, should be entirely dismissed. In the forms of glaucoma simplex, however, the immediate results of trephining have proven satisfactory. Personally, in the simplex forms of glaucoma, I am in favor of iridectomy. Only in case this type of operation proves unsuccessful, and the idea of using the trephining operation as a proper operation in inflammatory glaucoma, should be entirely dismissed. In the forms of glaucoma simplex, however, the immediate results of trephining have proven satisfactory. Personally, in the simplex forms of glaucoma, I am in favor of iridectomy. Only in case this type of operation proves unsuccessful are we then justified in resorting to the trephining or one of the operations that causes an extra-ocular drainage. I believe, although Elliot criticizes this, that the trephining operation will fall in the same class as Holt, with some forms of the LaGrange and the various other operations that may take extra-ocular drainage. These operations are more or less dangerous and constitute a permanent menace to your patients and should be employed as operations of last resort alone.

The Chairman: I will ask Dr. Woodruff to close.

Dr. Woodruff: Just a word, in answer to Dr. Knapp's question about the method in dealing with a glaucoma secondary to cataract. The idea sought to convey was if there was any visible explanation to the rise in tension, to, if possible, relieve that condition and, of course, one of those conditions is an involvement of the iris in the corneal wound. So that, if it is a possible thing to release or relieve those prolapsus,—for instance, the iris is prolapsed into the wound; the pupil is thrown forward. Of course, it is not possible, if the case has remained in that condition any length of time to release the iris in the wound, but it is possible to cut another portion of the iris out and I have done that on both sides. Of course, it makes an exceedingly broad corneal wound, but I have succeeded in relieving tension by such proceedings.

Dr. Wood has spoken about glaucoma, or rather a condition of tension not being a pathological entity, he said, which, of course, is true, but the idea of all these operations is to relieve tension and while we do hear and perhaps recognize a condition of glaucoma in which we do not find tension, that is, we find all the other symptoms but the tension, and there, of course, we do not advise any operation; but we know that the symptoms of disease and the condition which produces blindness is that condition of tension, so we must do something to relieve that. I will not take up the question of method at all, but I agree with Dr. Fisher that a method which cuts to the root of the iris is the way in which an iridectomy should be performed.

The Chairman: The next paper on the program will be that of Dr. Freer: "Opening of the Frontal Sinus, with Demonstrations on the Cadaver."

Dr. Otto T. Freer, Chicago: (Abstract:) The enlargement through the nose of the ostium or outlet of the frontal sinus, long generally regarded as prohibitively difficult, has been developed by the undiscouraged efforts of Ingals, Halle, Vacher, Mosher and lately of P. Watson Williams and Herbert Tilley of London, into a still intricate but nevertheless practicable method of operation. Dr. Freer, by original research, has tried to still further improve the operation, studying the anatomical route from the sinus interior downward into the nose as well as from below up, as has so far been mainly done.

In looking into a frontal sinus opened above the brow, the small normal opening or ostium, of about the diameter of a straw, is seen at the bottom of the sinus in about the center of the funnel-shaped sinus floor. This floor in front of the ostium is firm and hard, being formed here by the internal nasal crest of the frontal bone. Posteriorly and toward the orbit from the ostium, however, the frontal sinus floor is created by the walls of anterior ethmoidal

cells, these cells extending backward underneath the orbital plate of the frontal bone, which not only roofs the orbit but, extending inwardly beyond it, also forms the cranial covering of the anterior ethmoidal cells. The removal of these ethmoidal cells from under the orbital plate, by curetting with Dr. Freer's specially devised frontal sinus curettes from the interior of the sinus downward into the nasal cavity, opens the frontal sinus so widely into the nose in most cases, that almost always the cutting away forward of the internal nasal crest with a burr driven by a dental engine, may be dispensed with, the broad opening made by destruction of the ethmoidal cells being sufficient.

In most cases Dr. Freer's method of operating is begun by removal of the anterior half of the middle turbinate with the Freer ethmoid, thin-bladed, hand-pushed chisel and the Grünwald punch. In some cases, where the middle turbinate flanges out widely from the outer nasal wall, it may be left intact. The removal of the anterior half of the middle turbinate uncovers to view the uncinate process and the infundibulum, of which it forms the anterior boundary. An attempt is then made to pass the probe into the frontal sinus. If it will enter, the probe is left in place as a guide through the ethmoid cells to the sinus. Whether the probe will pass or not, the next step is the clearing away with the ring curette of the ethmoid cells from the bulla ethmoidalis forward to the ascending process of the superior maxillary bone and then up to and, if possible, through the frontal sinus floor. The knife-edged ring curette used is first made to enter the bulla ethmoidalis and from this starting point it cuts away the ethmoidal cells forward until it is arrested by the hard, strong ascending process. This forward direction is a much safer one than cutting backward from an infundibular cell after the manner of Mosher and the bulla, being the lowest and most constant of the ethmoid cells, is the easiest one of all to find. If the covering of the uncinate process is swollen, it is sometimes necessary to shave it off, in order to fully expose the bulla. As the next step, one of Freer's frontal sinus curettes is passed up into the sinus in the manner of a probe, the clearing away of the anterior ethmoid cells usually making this easy. If the sinus floor be unusually hard, it may be necessary to begin with the smallest of these curettes, called the probe curette. The edge of the curette is directed backward and will sweep away the remains of ethmoid cell walls from underneath the orbital plate roof of the ethmoid cells, thus bringing the posterior wall of the frontal sinus and the orbital plate into a single, sweeping curve. The direction followed by the Freer curettes is safe as they cut out from the sinus downward into the nasal cavity. Working from the nose up into the sinus, as is usually done, endangers the cranial and orbital walls of the sinus.

The curette, in either cutting upward into or downward out from the sinus into the nasal cavity, must not be turned inward toward the intersinus septum, as this might possibly perforate the wall of the olfactory fossa lodging the olfactory bulb, this fossa being floored by the cribriform plate of the ethmoid bone. Such a perforation would expose the dura or pierce it, and might lead to meningitis.

The preliminary removal of the anterior ethmoid cells in the second stage of the operation involves some danger of perforating the orbit, if the curette be directed strongly outward instead of forward and upward. The curette must not leave the space constituting the surgical approach to the sinus, this space being bounded inwardly by the turbinal plate of the ethmoid bone and outwardly by its lamina papyracea. The curette's proper direction may be kept by observing a tracing of the frontal sinus above the patient's brow, the tracing being made from the x-ray plate, which is an essential preliminary to the operation.

While in most cases the artificial opening made from the nose into the sinus will stay open, especially where the ethmoid cells removed are large, if the opening has to be made through small cells with strong walls or following a preceding removal of the cells with succeeding thickening and eburnation of the bone, granulations, terminating in adhesions, may close up the surgically enlarged outlet of the sinus. To prevent this the gold drainage tube of Ingals may be used. Dr. Freer is working at the construction of a rubber drain which will be self-retaining and which will be easier to introduce and replace than the Ingals tube.

The complete text of Dr. Freer's article on the intranasal opening of the frontal sinus will appear in the Transactions of the American Laryngological Association and later in the *Laryngoscope*. The article is fully illustrated.

DISCUSSION.

Dr. Woodruff: Mr. Chairman, I would like to ask Dr. Freer if he can tell us more about those two cases of blindness following operation on the frontal sinus, one of which was caused by intra-orbital hemorrhage? Was the blindness permanent or transient?

Dr. Freer: I know of these cases merely from the statements of the operators to me. The blindness was permanent, both in the orbital abscess and in the hemorrhage case. I know also of a third instance, where instant and permanent blindness followed the simple washing out of the maxillary antrum through the natural opening by means of an antrum tube. It is probable that the tube entered the orbit through the thin roof of the antrum, for immediate protrusion of the eyeball occurred, due, of course, to the fluid forced into the orbit.

Dr. Beck: To me, this paper was extremely interesting and important, because I have been working on this line, following Mosher's suggestion, since he showed me his operation before he presented it before the American Medical Association, several years ago. He took us down in the basement in the hotel and showed us what he had. I have been doing this operation, as suggested by Dr. Mosher, up to the

present date; that is, up to this time, as an operation of choice in all sinus work.

The first suggestion that Dr. Freer makes, in regard to Mosher's operation, refers to Mosher's mode of entrance into the ethmoid cells. Mosher himself insisted that you must break in in the region of the agger nasi, into a cell he calls the agger cell. If it is there, you will enter into it with the curette. So that is not an insistent point with me at least. If I can't get into the agger cell I have a much more proper method of entering the frontal sinus than as stated by the gentlemen who have defended it.

As to Dr. Freer's statement in regard to the perforation of the orbit, I have not satisfied myself, but I am confident that in no less than twenty-five non-suppurative cases I have entered through the bone, externally to the periosteum, and in no instance have I seen anything more than a slight edema of the lid, and a little discoloration. Therefore, if those cases have occurred, and I haven't any doubt that they did, wouldn't it be the duty of every man who has such a thing as that, to report it in detail, because that is what we are after; to see whether such cases do occur. I don't want to belittle this danger. I just want to give my experience and my work.

I want to say that the instruments that the doctor presented are certainly excellent, and I know they will help me in this operation. I have not seen them before, but I know that they are just the thing I am looking for.

Dr. Shambaugh: I am very much pleased to hear Dr. Freer discuss this subject in his careful, painstaking way. These operations upon the frontal sinus are cases that have been approached in various ways. As all of you know, it is only a few years ago that there was a great deal of discussion as to whether the intra-nasal or the extra-nasal route should be chosen, not only for the frontal sinus but for the maxillary sinuses as well. Most of the men whose operative work was preceded by anatomical study and a careful investigation of the anatomical details, proceeded with the intra-nasal work. The extra-nasal work was taken up more by the general surgeon and by men unacquainted with rhinologic literature.

Rhinologists agree that the intra-nasal route is the route of preference. Very little difficulty, as a rule, is encountered in the intra-nasal route, though there are occasional exceptions in which a complete cure is not obtained by it.

In regard to the frontal sinus I think the greatest difficulty is in getting drainage sufficient for a cure by intra-nasal surgery, and yet, this is the one sinus, above all others, where we wish to avoid an external operation. The anatomy should always be kept in mind, and yet in operating upon the ethmoid cells the anatomic details can not always be followed, because of variations in the structure and arrangement of the ethmoid cells. For instance, take Mosher's method of breaking through into an agger cell. In most cases the agger cell is not present. It is an exceptional cell. Now, as Dr. Freer points out, to break through, in that region, or to attempt to break through, would carry the operator beyond the ethmoid cells into the orbit. In suggesting the bulla ethmoidalis as the place of entrance in preference to the agger cell, Dr. Freer has given valuable advice. In working on the ethmoid I think a good deal of the danger depends upon the instrument used there. I employ simply a Hartmann's forceps. Probes or curettes may be forced through into the orbit. In a few seconds' time the Hartmann's forceps will take all the cell walls. I don't hesitate—I simply break it through and keep curetting out all the time towards the orbit. I try to leave part of the middle turbinate standing in order to avoid breaking into the cribriform plate. I haven't had the experiences told to Dr. Freer by other operators and have not heard of the cases mentioned. I dare say the orbit is broken into in a good many cases, but the accident has not been followed by any harmful results in my experience, and yet, perhaps it would be wise to be more cautious than has been the usual practice working out that way.

Dr. Brawley: I ask Dr. Freer what his operative method is in the type of case where there are very heavy ethmoidal laminae, either anatomically heavy or thick because of chronic infection. It seems to me that the instruments which he has passed around, while very satisfactory for a majority of the ethmoid bones encountered, would not be suitable for the type mentioned by me.

The Chairman: Is there any further discussion on this paper? If not, I will call upon Dr. Freer to close.

Dr. Freer: Dr. Beck has said that the orbital complications mentioned should have been reported by the men to whom they occurred. Both of the operators are experienced men, who did not blunder, but to publish these cases might have injured their reputations because those inexperienced in the difficulties of the operations performed would not have understood this.

As Dr. Shambaugh stated, the danger of orbital or cerebral complications is slight, not more than from the external operation, if the topography of the region be not only studied, but so well studied that the surgeon has a mental picture of the anatomical relations so fixed in his mind, that he sees where he is going with a mental x-ray. It will not do, however, to say that there is no risk where an operation has to be performed in the neighborhood of the brain and eye.

Among the many implements used by various operators the rasp is the one I regard as the most dangerous, as, even though it is intended to merely cut with a downward motion it must be pushed upward into the sinus to make this motion possible and, as it is a strong, rigid steel instrument, it is risky to wedge it thus upward against the thin posterior cerebral wall which overhangs variously in various sinuses. I have been told of a death from meningitis following the use of the rasp. In addition, as compared to the burr driven by the dental engine, it is a slow and inef-

fective instrument. In my preference for the burr I am in accord with Max Halle of Berlin.

In regard to results obtained from the intra-nasal ventilation and drainage of chronically suppurating antra of Highmore, mentioned by Dr. Shambaugh, I have been unfailingly successful in the cure of the suppuration in the last 10 years since I have intra-nasally removed the nasal wall of the antrum in the lower meatus after resection of the anterior half of the inferior turbinated body, the instruments used being the nasal trephine, antrum burr and punch forceps; in fact, I have found the maxillary antrum the most satisfactory of all of the sinuses to operate upon for empyema because of the certainty of curing the suppuration and I can see no reason for the continued use of the Caldwell-Luc and Denker operations, since the broad opening in the lower meatus invariably accomplishes a cure in typical cases.

In respect to the intra-nasal frontal sinus operation just displayed, in a small minority of cases it is necessary to not only remove the anterior ethmoidal cells in order to enlarge the exit of the frontal sinus backward, but also to use the burr forward to cut away the internal nasal crest of the frontal bone with the dental engine. These are the cases referred to by Dr. Brawley with eburnated and thick ethmoidal laminae. My curettes, however, will break these away in most cases most effectively and I advise Dr. Brawley to try them. Hardening and thickening of the ethmoid bone takes place especially after preceding operations on the ethmoid cells or in atrophic suppurative conditions. P. Watson Williams says that in the greater number of cases he does not have to use the burr, but at times it is indispensable. The burr is not used until after the frontal sinus ostium has been enlarged posteriorily by removal of the anterior ethmoid cells so that a probe will enter the frontal sinus freely. To place the burr for cutting away the internal nasal crest, look upward along the nasal roof to where the probe disappears from sight in the ostium of the frontal sinus, this is the location of the internal nasal crest. Press the burr forward in this place and the crest is easily cut away. Do not crowd the burr upward against the posterior wall of the sinus. The burrs of Max Halle are excellent for the purpose. The internal nasal crest is called the internal angular process by Mosher. The cutting away of the internal nasal crest with the burr will permit the introduction of my larger, strong, backward cutting curette and I can assure Dr. Brawley that it will cut away thick ethmoid partitions from the sinus down into the nose.

It is in just this type of frontal sinus suppuration, with eburnation of the bone, that the large surgically made opening from the sinus into the nose has a great tendency to close after the intra-nasal operation. For these cases I have devised a rubber drain that may be introduced from the nose and that will stay in place until withdrawn.

The Chairman: The next paper on the program is "Clinical Problems in Connection With Some of the Complications of Middle Ear Suppuration," by Dr. Shambaugh of Chicago.

Dr. George E. Shambaugh: *Mr. Chairman and Gentlemen:* When the secretary asked me to discuss this question, I felt a little reluctant at first, because the first thought that occurred to me is that this subject is one that has been so thoroughly worked over and so completely expressed in literature, so much better than I could, that it would be somewhat out of place for me to say anything new about this subject. And yet, on the other hand, this fact remains true, that all of these clinical problems, especially those connected with the mastoid, are all new problems to each and every one of us, at some stage or other, until our own experience makes it a practice of our own, and it is certainly apropos that a question as important as the question of the complications of the clinical problems connected with the suppurative diseases of the middle ear, should form a subject for discussion at meetings of this sort at great frequency, so that we can get the individual experiences of the various men and make this knowledge on this subject our own knowledge. The most that I can expect to do, therefore, is simply to express some of my own problems and open up the subject for discussion, and I daresay others have had experiences which have imposed upon them the difficulties that one has to encounter in connection with the suppurative diseases of the middle ear and the complications.

(Paper appears on page 161)

I have here a couple of plates that I would like to have you look at. These are from the same individual. Those plates were taken perhaps a few months ago. These plates (indicating) were taken last Saturday. I just would like to have you look at them and give your opinion about them. I might say, briefly, just what that case is. Here is a boy of, perhaps, fifteen. He came to see me the first thing last winter because he had a sensation of coldness in the ear; no pain; no temperature. Looking at the ear, I could see some slight congestion along the handle of the hammer. The rest of the drum membrane showed very little discoloration. The condition was so slight that I told him to just report back to me in a week or ten days, if the thing proceeded. Next week, or the week after, he came down with the same condition. A few bubbles in the ear and that was all. The congestion in the drum membrane remained about the same. After this thing had gone on about a month that way, I proceeded to incise the drum membrane and I drew out a thin mucus discharge from the ear. I expected him to get well, as we find in many of those cases where there is a persistence of secretion, instead of infection, you just have to blow out that secretion and that will be all. But, to my surprise, the boy came back with the same condition again. There was no pain and no temperature. I again incised the drum membrane and pulled out the same stuff. After that thing had been going on for a while, and after I had done three incisions to the drum membrane the drum

membrane remains open. There is more discharge. He never has a rise in temperature. The tenderness over the mastoid cannot be estimated at all. Then I had this x-ray plate taken. The interpretation placed upon that by myself and Dr. Potter, who has had a good deal of experience, is that that was a mastoid filled with secretion but no softening of the mastoid process. The boy comes back to me again last week. He has the perforation practically closed. Once in a while there is a little discharge from it. Then I had the other plate made. It looks about like the day before. My impression is that he will have to have a mastoid operation, but I have not done it yet.

The Chairman: The discussion will be opened by Dr. Joseph Beck.

Dr. Beck: The subject presented seems to me to have one or two important points, particularly that of mastoid abscess without symptoms. I would like to speak about the importance of roentenograms in connection with that point. The doctor covered his subject so thoroughly that any discussion on the personal experiences that one has had with that same condition is unnecessary. Roentgenograms will not only show that a mastoid is involved but it will show the pathology or type of involvement. Dr. Potter, who is an excellent roentgenologist, and myself have had a lengthy discussion on this subject, over x-ray pictures, to see if we could determine what pathological processes there exists within the mastoid. I have shown him plates and told him of the cases and the conditions that I found at the operation, to see if we could determine whether we had a mastoiditis with a breaking down of the mastoid cells or the mastoiditis of a graver type, in which the cells were still intact. Those are the more difficult cases to cure.

You will find that if you study these pictures in series, for instance of two or three days, the cells are very clearly defined and they are quite free from pus. The cells are, you might say, almost normal to the x-ray pictures and the partitions are bigger. They are more defined. You can outline the cell partition and that is due to the fact that they are pathological.

In connection with the infection beyond the confines of the mastoid, I think the doctor himself has had cases which he related to me, and I have had them, extending way in the occipital region. You find, often, if you have an x-ray picture that there are cells that can be clearly shown and one of those cells is bridged up and gives rise to recurring temperature and pain and that region must be reoperated on.

The questions of ligation of the jugular in sinus thrombosis are not yet settled because so many cases get well without the ligation, but I think the safe way is to ligate the jugular.

The Chairman: The paper is open for discussion Is there any further discussion on this paper?

Dr. Allport: The two salient features of Dr. Shambaugh's paper are, in the first place, cases where we are, perhaps, led into operating unnecessarily and, in the second place, cases we do not operate on where it is necessary. Let us take the first, for instance, where we are led into operating on cases that are not necessary. A good many cases of middle ear infection are, of course, accompanied by symptoms that lead us to feel that it is necessary to operate, and yet we know, as a matter of experience, that if we are conservative and study the case carefully and watch it from day to day, a good many of these cases will get along without an operation at all. This involves a careful study of the case from all points of view. It involves a careful inspection of the case from day to day, as regards the appearance of the meatus and the drum head, even after a thorough opening of the drum head has been made. Take many of these cases and they have constant swelling and redness of the meatus, especially the upper and posterior walls. In fact, I usually expect to see swelling and redness and edema here, long before I see it over the external meatus. Then we should carefully examine the condition of the patient from day to day; his temperature, particularly, watching it to see if there is a constant elevation of temperature with, perhaps, an increasing height from day to day. And then I place a great deal of dependence upon the blood count, and the general condition of the patient from day to day; his temperature, particularly, watching it to see if there is a constant elevation of temperature with, perhaps an increasing height from day to day. And then I place a great deal of dependence upon the blood count, and the general condition of the patient; pain, irritability, etc.

Then, again, we have those cases all of us see where we do not operate for a while and yet the patients don't get well. The symptoms are very illy defined. The blood count is not bad, the temperature is not bad and still the discharge from the ear does not cease and there is constant slight elevation of temperature. Very likely in those cases there is no external evidence of disease at all, that is, you can handle the mastoid process easily and comfortably to the patient. Now, those cases hang fire for a long time and ultimately we are forced into a corner where there does not seem to be anything to do but to operate and we operate on those cases and we find, frequently, a most destructive condition, and when we open the mastoid, we find that we should have operated a long time before.

Where the discharge is, we will say, of a non-streptococcic nature, we all feel that we can wait; but where the discharge is of a streptococcic nature, we feel that we must be on the alert and not be caught napping.

Now, there seems to have been some question about secondary operation. We operate for mastoid in the first place and obtain an appreciable amount of relief and then we begin to have symptoms again and we reoperate and find that we have not opened some cells that we should have opened at the original operation. Now, of course, the only thing to do is to be

extremely careful that our original operation is thorough. I make a practice after I get through with my operation to feel around here and there, and every once in a while I will find that my fussing around after the operation is apparently over, is rewarded by unearthing one or more unsuspected pathological cells.

I don't want to be always harping on one thing, but I have found that I am more apt to open all of the cells by the use of the burr than I am by the use of the curette. That is, I think I find more pathological cells with the burr than I do with any other instrument.

So far as the x-ray is concerned, I believe that we have here a field that is worthy of investigation. I, myself, have never been able to achieve any very great success in the use of trans-illumination, and I have not, as yet, had very much assistance from the x-ray plates. Of course, that may be because I am not experienced enough in interpreting pictures as I see them. I am rather surprised when I hear Beck and the others who find the x-ray to be of so much assistance to them in the detection of these cases. Nevertheless, I have no doubt that these gentlemen are very much more skilled in the interpretation of these plates than I am and doubtless they can see things that I cannot see. I, therefore, feel that we should all of us, at all events, give this method of assistance all of the attention it deserves. I have no doubt that as we become more skillful in interpreting the pictures, we shall find things that we do not find at the present time.

Dr. R. J. Tivnen: The discussion of Dr. Shambaugh's paper has singularly worked down to the phase of the indications for operation on the mastoid cell. Speaking on that phase of the subject, why I wish to express my hearty approval of Dr. Shambaugh's position, namely, that the proofs of quite a large number of these cases is the continuation of the symptoms, outside of some few mastoid cases where the indications for operative interference are clear. It becomes a question of the study of the individual symptoms from day to day. For instance, just one point that he mentioned along that line, was the presence of tenderness. I agree with him. I have been very much gratified to see it proven that that symptom alone may be disregarded for some considerable time.

I regard the presence of a profuse discharge existing for a period of two weeks, in these cases, as almost a positive indication for opening the mastoid. Also, on the question of operative interference, the point made by Dr. Allport is a guide in determining after all, whether I should interfere rather early or wait some little time. The question of the streptococcus in the discharge, is certainly, in a large number of cases, an indication of more hasty operation than if you have some of the lesser bacterial causes. As to the blood count or the temperature, personally, I have not been able to have the satisfaction from both those clinical factors that I think I should have.

One of the things that would determine me is the age of my patient. The young child and the old is an important point to reckon with as to whether you should institute an operative procedure or not.

There is this to be said about the x-ray. It is very difficult to get a man who knows how to take an x-ray picture. In Chicago we have Dr. Potter, who is very expert at this, but Dr. Potter stands almost alone in that work in Chicago. If it were not for the enthusiasm of such men as Dr. Beck on the x-ray side, I should have lost heart in the thing entirely.

The Chairman: I will ask Dr. Shambaugh to close.

Dr. Shambaugh: I think, from the discussion, it is quite clear to everyone that we have to deal with a very complex clinical problem, and one which we cannot decide off-hand. We see so many cases of mastoiditis where the question of operation is very well passed over. On the other hand, we see cases where the symptoms and the discomfort are so slight that the symptoms might be easily overlooked, and it is only by watching carefully for changes that we can come to the conclusion as to who should be operated on. We have to remember that we must be very careful in giving a diagnosis to a patient. It is very unusual that we are able to say to a patient, "You cannot get well without an operation." I would not make a reply like that; a positive reply. We can simply say in our judgment, the best thing to do is to operate. I remember a case a few years ago where a man had a running ear; an abscess appearing in two or three different places in the orbit. He refused operation. That man got well. He had a thrombosis of the lateral sinus if he had anything the matter with him and he went on and got well. I remember a case where a girl came back from Europe. She had a mastoid abscess and when she got here the thing had broken through the external canal. I said, "You have got a mastoid abscess." She said, "No." She got well without an operation.

As to the x-ray, I think the idea which the general medical public has in regard to the possibility of the advantages of the x-ray plate, is still very crude.

The Chairman: The next paper on the program is "Sympathetic Ophthalmia," by Dr. Robert Blue of Chicago.

Dr. Robert Blue: It is not my purpose to bring you anything new on the subject for which I have been announced:

(Paper appears on page 163)

The Chairman: The next paper on the program is the "Treatment of Tuberculosis of the Larynx," by Dr. Edmonson of Mt. Vernon.

Dr. Olstrom: I would like to know what the results are, that is, if there are any ultimate results of the course of the disease. These things are all very pretty to do, but what are the results? If a man has a tubercular involvement of the epiglottis, he is in pretty bad shape. Cutting out the epiglottis is doing something. What is the result?

Dr. Beck: The doctor alluded to the etiological

factor of tuberculosis of the larynx. I understood him to say that the tonsils were primarily the source of infection of tuberculosis, and that about four per cent of tonsils have tuberculosis in them. If this means the tonsils of tubercular patients, I think the percentage is much larger, but if it is tuberculosis in tonsils of non-tubercular patients, the percentage is very much over estimated. It is practically scarcely ever found. I have a large number of tonsils of patients who had chronic infection, with temperatures in the afternoon, and yet none of those ever showed a single evidence of tuberculosis, or true tubercular disease in the tonsils.

The Chairman: Any further discussion? If not, I will ask Dr. Edmonson to close.

Dr. Edmonson: As to the result in removal of the epiglottis. It is very much better to remove the epiglottis and let your patient die that way, than to see him starve to death by inches. You reach the point where cocain, morphin and the rest of the drugs have no effect on your patient and he cannot swallow, and this is done as a matter of letting the patient die in comfort and not let him starve to death. The patient is bound to be dead in a week or so, without the operation. He may live four, five or six or eight weeks, with the operation. It is a matter of extending his life a little. In the earlier stages you don't remove the epiglottis. It is only in extremes.

Now as to the proper percentage in tonsils. I haven't made any personal examination at all, but from the Eye, Ear, Nose and Throat Department of the St. Luke's Hospital in Chicago, the report came down, which was that from two to four per cent of tonsils were tubercular. While in the west, I took the matter up with Dr. Lockter and Dr. Lockter insists on four per cent. I told him that it has not been my observation that it was such a big number, but he insists that four per cent is a conservative estimate, in his experience. I don't know whether he is quoting authority or making a general observation.

The Chairman: The next paper will be that of Dr. Cavanaugh on the "Non Suppurative Sinus Diseases in Relation to the Eye."

(Paper appears on page 166)

The Chairman: The discussion on this paper will be opened by Dr. R. J. Tivnen.

Dr. Tivnen: *Mr. President, Gentlemen:* Even a superficial knowledge of the anatomical relations of those structures, would easily convince one how simple it would be for infections to travel from those cavities into the orbit that involves the eye structures.

The indictment against the sinuses of the suppurative types, as causing ocular troubles, of course, is no longer disputed. That indictment has been proven over and over again, and the proof of it all has been that operative measures instituted on the particular sinus involved, has brought the expected good results.

Now, however, when you get to the other phase of the subject, the nonsuppurative type of sinus trouble in relation to eye troubles, you enter a field that is not quite so clear, perhaps. It is true that we have many cases of abstract eye trouble, such, for instance, as headaches, dulling of eyesight, inability for concentration for eye work and for the demands of anything bordering on an excessive demand upon the eyes. It has not been my experience, however, to the extent that Dr. Cavanaugh said, that fifty per cent of the eye cases would be chargeable to that particular type of trouble but that type of case does give us considerable number of eye cases.

My own experience along this line has not been so extensive, but I have come to this conclusion, that of all the different sinuses, it would seem to me that the ethmoids were the ones that were more often at the bottom of the trouble. If I have an abstract trouble with the eyes, that I am unable to solve, I feel that my work is not complete until I have submitted that case to a rhinologiest for his expert opinion as to the likelihood of the sinuses contributing toward the trouble.

The Chairman: The paper is open for general discussion.

Dr. Brawley: It seems to me, in dealing with this subject, that the key note should be co-operation, as Dr. Tivnen said. If the eye man does not consider himself qualified to make a thorough diagnosis of the nasal or maxillary sinus condition, he can, at least qualify himself to discover the more apparent connections, and he can learn enough about them, combined with the suspicions or the symptoms, to determine whether it is necessary to go on and have the opinion of an expert rhinologist.

The percentage of fifty per cent of eye diseases being due to nasal troubles—of course, I may have misunderstood Dr. Cavanaugh, but that is entirely out of proportion. I cannot give the percentage, but it is nearer ten than it is fifty. There are a great many of those cases that have been charged to nasal conditions, in which the various other conditions, in the general system, have not been eliminated. Such conditions as toxemias from other sources of the body must be eliminated before we can say that the nose can be charged directly, in any given case.

Dr. Shambaugh: The non-suppurative diseases of these sinuses are, to me, the most interesting. We all recognize the non-suppurative diseases of the ethmoid, very often, from the symptoms, even before inspection of the nose at all, and can come close to a diagnosis. Attacks of sneezing, a feeling of cold in the head, a voice as though a person was suffering from a head cold—I have been surprised in some of these cases, where I thought that there was a hypertrophied ethmoiditis there, to find, on inspection of the case, such little evidences of that condition.

Last week I took care of two cases, both of them suffering pains above and below the eyes. No temperature. Neither case was preceded by a head cold. In neither case was the middle turbinate enlarged. You could see the outlines of the structures of the

middle meatus. There was no outward obstruction at all. In neither case was there any secretion in the nose. Scrutinizing the case very carefully, every day for a week, there was absolutely no evidence of any pus at any time in the nose. Trans-illumination threw a shadow over it. I wasn't able to get a probe into either frontal sinus. I would like to ask Dr. Cavanaugh, when he spoke about the x-ray throwing a shadow in these non-suppurative diseases of the frontal sinus, how he accounted for the shadow there in this case. My impression is that there is secretion in the frontal sinus. That a person should have large inflammatory reaction in the mucous membrane, running over the frontal sinus, produce a shadow, and yet not to be associated with secretion, does not quite satisfy me. I would like to ask Dr. Cavanaugh what his interpretation was, if I understood him correctly, when he spoke about a shadow being unnecessary where there were no secretions.

Dr. Woodruff: I was, like Dr. Brawley, very much surprised with Dr. Cavanaugh's statement regarding the number of eye diseases due to sinus diseases. I am somewhat in this position. If some good authority on this subject can show us any different number, or any number, of such difficult diseases as glaucoma and uveitis and such definite conditions as those associated with non-suppurative sinus diseases, and cured them by proper procedure directed to the sinus, if we can have any number of those demonstrated to us, then we have got something definite, but as long as the symptom is merely a headache, why, we are limited in our progress, it seems to me, in making this connection between these two conditions. Before the era of sinus investigation, headaches were very frequently relieved by treatment of the nose. Between the nose and the head, I am anxiously waiting for a more definite demonstration as to the more intimate relationship between the eye and the sinuses.

Dr. Allport: I desire to say that I didn't so understand Dr. Cavanaugh's statement, that fifty per cent of all eye troubles were dependent upon what you might call nasal conditions. I understood Dr. Cavanaugh to say this: That about fifty per cent of the cases that were referred to him to discover if possibly he might find an etiological factor connecting the two; in the fifty per cent of those referred cases, that he had discovered nasal conditions accounting for the ocular condition. If that was his statement, and that is what I understood him to say, I see no reason for doubting the record at all. I suppose there is scarcely a day that Dr. Brawley does not examine quite a number of cases for me, to see if he can discover a connection between the nose and the eye, and I should say that in about half the cases that I sent in to Dr. Brawley for examination, we find such a condition. But, of course, I think Dr. Cavanaugh would hardly mean that fifty per cent of all eye diseases were dependent upon the sinus conditions.

I am sure we are all of us forced to realize a very distinct connection between nasal conditions and ocular conditions. In fact, as a matter of routine, in our office, we do not feel very well satisfied with our examination unless we do have a nasal examination, especially in cases where there is the slightest degree of doubt as to the etiology. Presumably there is no question but what a great many of the ocular conditions are dependent upon nasal conditions, and I should like to say, in my turn, that a very large majority of those nasal conditions, in my opinion, are not dependent upon local conditions at all, but on general conditions.

The Chairman: Dr. Cavanaugh, you may close.

Dr. Cavanaugh: I want to thank Dr. Allport for helping me out of this situation. He seems to have been the only one that understood my remarks. Far be it from me to get up here among so many ophthalmologists and make the statement that fifty per cent of the eye cases are due to sinus diseases. If they are, I don't know anything about it. But fifty per cent of the cases that I have seen, as Dr. Allport said, that have been referred to me, have been responsible for some of those conditions.

Regarding the shadows, as Dr. Shambaugh spoke about, produced in the x-ray plate, I am not in a position to answer that question exactly, because I do not know. The only thing I do know is that in this case, there was absolutely no secretion to be found, yet over that side there was a shadow.

Dr. Woodruff asked me whether in certain cases of glaucoma I would make the statement if, after operating on the non-suppurative type, any of them were benefited. I haven't had any such case, but I am following up this non-suppurative type and I might say that I received the inclination to do so, through Dr. Brawley's articles, which I have read, and I believe he was one of the first to bring forth the affect of non-suppurative types upon eye diseases. I have seen a number of them, and it has given me inspiration to work along these lines, and I think that many of us overlook these non-suppurative types. Men look into the nose and they see a practically normal condition, and they say "normal nose." I believe that many conditions that we have to leave unaccounted for are due to something hidden, and I believe that it requires a more thorough work along this line.

I appreciate what the members have said, and I thank you.

The Chairman: The next paper on the program will be "The Blind Spot," by Dr. Harry S. Gradle.

(Paper appears on page 170)

The Chairman: The next paper on the program is "Syphilis of Internal Ear," by Dr. J. H. Mundt.

(Paper appears on page 171)

The Chairman: The next paper on the program is that of Dr. A. M. Corwin of Chicago, "Causes for Catching Cold."

(Extemporaneous—no paper)

The Chairman: The next paper on the program is by Dr. Prince, "A New Conception in Cataract Extraction."

(Extemporaneous—no paper)

The Chairman: I wish to make an announcement in reference to a paper which I have in my possession by Dr. Friedberg of Chicago, on "Foreign Bodies in the Respiratory Tract." The doctor, at the last moment, was unable to come. If you think well of it, you may make a motion that this paper be read by title.

(Paper appears on page 175)

The Chairman: The next paper is that of Dr. Frank Brawley, "Further Consideration of the Tonsils as a Source of Focal Infections."

(Paper appears on page 178)

The Chairman: The paper is open for discussion.

Dr. Allport: Mr. Chairman, I would like to narrate an interesting and instructive case, which was under my observation, that, I think, will bear upon this subject very closely. The patient was a mature man. Early in life he was subject to some attacks of tonsilitis. That, however, passed away, and at the present time this man is apparently a perfectly healthy man. Last summer he went away and came back to Chicago in perfectly good health in every respect. Three days after he returned to Chicago, he was taken with a lame back, which was supposed to be lumbago. After trying various home remedies, he went to an eminent internist and the internist, without any special examination, agreed with the home diagnosis that it was a case of lumbago or rheumatism, or whatever it was, and prescribed certain remedies. The patient got worse. After some weeks he went back to the physician and he again prescribed. Some weeks elapsed, perhaps a couple of months. Meanwhile the patient was getting worse and worse all the time. Finally the physician told the patient that he must go into a hospital and have a thorough examination made. He went into the hospital and had a hospital examination made, and the physician said that the gentleman was a perfect specimen and that there was nothing the matter with him at all except that he had a relaxation of the small illiac ligament, a very common disease. He prescribed a surcingle to be strapped around the waist, to relieve that condition. The surcingle was used, without any result. Various other appliances were used without any benefit. Finally, another surgeon was called in and he prescribed rest in bed for months, and appliances to strap the hips together and a very rigorous diet, and no good was accomplished. Finally the patient came into our observation, in the office. Dr. Brawley squeezed out some of the contents of the tonsil—I might say that the tonsils looked well; they didn't look large; looked rather small. Nevertheless, Dr. Brawley squeezed out some of the contents and it was found that streptococcus existed. This was done twice. The pathological part was sent to the laboratory and injected into a rabbit, but nothing came of it. After a while, this patient went through various x-ray examinations. Being a fleshy man, it was difficult to get an accurate picture. However, after nine efforts a distinct arthritis was discovered in the right sacroilliac joint, in the lower portion. There is no question about that. It was examined by a number of skilled men and there was no question about the x-ray plates. Not being able to find any other source of trouble, Dr. Brawley took both tonsils out. I was present at the time of the operation, and when the left tonsil was squeezed by the forceps, pus escaped. These tonsils were sent to the laboratory and found to be streptococcic. The soreness is practically disappearing and the patient is recovering. I merely cited this case as an evidence, briefly, of what the patient can undergo in the course of nine months in a case of this kind and what may result from hitting the nail on the head and getting at the exact diagnosis and the exact cure.

The Chairman: The next paper by Dr. Boot, "The Diagnosis of Otosclerosis."

(Paper appears on page 183)

Society Proceedings

CASS AND MORGAN COUNTIES

The fourth annual picnic of the Cass and Morgan County Medical Society was held August 12, 1915 at the country home of D. Carl E. Black, of Jacksonville, Illinois. The day was fine for the occasion and there were about two hundred and seventy-five people present, including the friends and families of the physicians.

The meeting was called to order by Dr. Day, president of the Cass County Medical Society; after the announcement of the meeting Dr. Stacey, president of the Morgan County Medical Society took the chair and presided during the meeting.

Dr. and Mrs. Geo. W. Crile, of Cleveland, Ohio, were our special guests and Dr. Crile delivered an informal address on "The Goiter Question."

Fourteen physicians were present from Cass county; thirty from Sangamon; fourteen other counties were represented by forty-one members.

Dr. Crile, during his lecture on "The Goiter Question," brought out the following points: His discourse being informal, the following was taken by notes, and is not intended to give the whole of his lecture. Neither is it given in the language of the speaker.

He stated that goiter is by no means equally distributed in all proportions of the world. It is especially common among the inhabitants of the mountains, and the fresh water lakes; while the inhabitants of the seashore are not to any extent effected by this condition. He stated that there is evidently a lack of adjustment of man to his surroundings; that there must be some defect in the water or something peculiar to the climate to which man has not been able to adjust himself. Goiter is not only a disadvantage because of the internal effects of the disease; it is often insignificant in size, but often large, and causes much discomfort, either from external effects or internal pressure. Many people are troubled very much on account of the cosmetic effects of the disease. Many patients come for treatment for goiter, principally for cosmetic effect.

Goiter often develops into cancer. The risk of adenamata of the thyroid becoming carcinomatous when it develops in the cancer period is about as great as the risk of adenomata of the breast. Cancer of the thyroid is only cured by operation, where the condition is not diagnosed before operation, but where it is proven to be of this nature after operation is performed.

Must the human race go on without any hope on the goiter question? From the knowledge that we now have, there is almost an answer to that question. Goiter is not increased by the change in man, but from the change of the crusts of the earth. The salts of the sea came from the land, by the continuous washing of the hills into the lowlands. The distribution of salts of iodine is greatly diminished in all food products of the hills in proportion to the amount of iodine in the food products of the low lands. Research in agriculture has shown that the seaside foods are more full of iodine than the food on the hills. It is reasonable to suppose that the prevalence of goiter is very much influenced by the distribution of the salts of iodine in the food product. The thyroid gland reacts on iodine by storing and changing so it can be used in metabolism. It might be supposed that the lack of iodine is the cause of the enlargement of the gland to make up for the defect due to the insufficient amount of iodine. Then, if iodine is given to the child, it may prevent the development of goiter. Salt should be given to man and animals to supply the shortage of salt which has been washed into the sea. If iodine is properly given to children, it will prevent the development of goiter; also if iodine is given to the pregnant woman, the development of goiter will not occur.

It has been demonstrated by research in beriberi that this disease was distributed over the riceland, and also that people using refined rice develop the disease, when people using the whole rice did not develop the disease; and also if the husk and the kernel of the rice were used with refined rice that the disease did not develop. If this is true with beriberi, that the disease is due to a shortage of a certain portion of the food, why can it not be true in goiter?

If this is so, then why wait to give iodine to children to prevent goiter, or in other conditions where goiter is prone to develop. Knowing this, then we have the reason established, why good results were obtained by the old practitioners by giving iodine; then if we would give iodine to every child in the goiter region, in every case of infectious disease or exhaustion and in the early stages of pregnancy we would expect to have a great reduction in the number of cases of goiter. Salts can be given to man in various ways without much danger but iodine must be given cautiously. Iodine in over doses given for a long period of time causes serious disturbances. Exophthalmic symptoms are exactly the same as the effects produced by the excessive and prolonged use of iodine. Exophthalmic goiter is prone to produce severe symptoms and is the cause of early death in many people. Exophthalmic goiter may follow conditions of fear, worry, and overwork combined. It may also be caused by infection and auto-intoxication. A very interesting condition is the close relation of Graves' disease to tuberculosis; barring the lung findings, and the exophthalmia, it is very hard to determine or distinguish any great difference in the two diseases. In both conditions we have the tremor, rapid respiration, palpitation of the heart, the flush, nervousness, and all the symptoms in either case, except the exophthalmos, and the pulmonary findings. By observation at autopsy, excluding lung findings are found very similar. In either case there is a driving of the kinetic system to extreme action. By over emotion we have the same driving with a similar effect. Graves' disease in the incipient state is often taken for tuberculosis and vice versa. The treatment of exophthalmic goiter is very important. No case should be given thyroid extract, neither should any case be given iodine. Another thing to be considered is the ambition of the young girl in high school during the period of her expansion into womanhood. She often needs rest, and this should be insisted upon, although it is very difficult to get the patient to take a rest. It is difficult to get a normal woman to rest, and more difficult to get one whose nervous system is tempered to a high pitch by the effects of exophthalmic goiter. Rest must be taken before the real symptoms of exophthalmic goiter appear. The removal of part of the gland is certainly a great advantage when patient shows the early symptoms of exophthalmic goiter. This should be done by the anoci-association method; patient being anesthetized by nitrous oxide and carried quietly to the operating room without excitement and the gland removed; the operation performed in a way to produce the least amount of shock possible. The patient then, taken quietly back to her bed, awakes and finds herself in her own bed with only her nurse, and without any knowledge of what has happened. The condition of emotion is certainly reduced to the minimum, and the best results obtained by this method.

The subject was discussed by the following physicians, who expressed their appreciation of Dr. Crile's paper, and also expressed their appreciation of the meeting as a whole. Everybody seemed to have enjoyed the picnic very much. Dr. Collins, of Peoria, lead the discussion. Others in order as given below: Dr. Black, of Jacksonville; Dr. Munson, of Springfield; Dr. Mammen, of Bloomington; Dr. Don Deal, of Springfield; Dr. Brittin, of Athens; Dr. Norbury, of Springfield; Dr. Patton, of Springfield; Dr. Bowe, of Jacksonville; Dr. Sloan, of Bloomington; Dr. Pitner, of Jacksonville.

In closing, Dr. Crile spoke of the conditions in the war zone in Europe, stating that it happened to be his duty as a surgeon in charge of a hospital, to care for the wounded and observe what was going on. He stated that it was amazing, and that a man cannot realize what is happening, in any way, except by experience. He said his experience gave him a

look into a crater where the people, the product of civilization which it took years to build, are being thrown to destruction.

It is a horrible situation to see the men of the universities of Germany and the other countries now on the firing line. The brains of many of them are now fertilizing the soil of Europe. There are no tears in Belgium at the present time. Men no longer think of their possessions; no longer think of their family relations; all this is torn down and there is nothing before them except the great struggle of war. Under most unsanitary conditions men are tugging away to defend their stand on the firing line, one man every three feet, with no chance for the wounded to be carried off during the day; they have to be dragged off at night. Men are willingly and strenuously doing things that they could not have been induced to do under any circumstances in times of peace.

A vote of thanks was extended to Dr. Black for his hospitality and to Dr. Crile for his address and the meeting adjourned. Committee for the joint meeting: J. L. Day, Virginia; G. F. Soule, Beardstown; W. R. Blackburn, Virginia; G. H. Stacy, G. R. Bradley and T. G. McLin, Jacksonville.

COOK COUNTY

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held May 17, 1915, with the president, Dr. Richard J. Tivnen, in the chair.

Dr. Frank Brawley presented two clinical cases. The first case was a seton operation for glaucoma.

This case was operated on May 4, the tension now being slightly raised, the tonometer showing 59 mm. There had been no pain since the operation and the eye is practically quiet. The treatment consists of atropin and salicylates, her own physician taking care of the diet and hygiene.

The second case shown by Dr. Brawley was one of proptosis of the globe downward and upward. There was a floating swelling over the forehead. On examination he found a hypoplastic ethmoiditis, no pus, and made the diagnosis of mucocele. When the sinus was opened no connection with the nose was found. Where the frontal nasal duct should have been, there was found about two cm. of cancellous bone, the floor of the frontal sinus being necrotic. This was removed and the space thoroughly curetted and drained. The operation was performed April 16, practically a month ago. The interesting feature of the case consists in the fact that he was not conscious of any double vision up to the time of the operation, but the rapid restoration of the eye produced a diplopia. At the present time the muscle balance is normal

Dr. Clark W. Hawley presented the case of a young man who was making experiments with a test tube. There was an explosion and a large mass of material in the tube was thrown into the lower sulcus of the eye, producing a severe burning. This material had to be scraped away. After a time healing went on, leaving a symblepharon which extended up to the extent of the burn on the cornea. When the patient looked up the lower lid was carried up to the cornea. The aim was to relieve the symblepharon, which was removed three weeks ago in the hospital. It was very much like a pterygium extending over quite a large portion of the lower lid and a portion of the cornea. After dissecting off the pterygium from the cornea an incision was begun at the lower border upward and over the center of the eye-ball, carrying it well up on top of the eye-ball. Two stitches were placed in the conjunctiva before cutting it off. The part dissected off was about three mm. wide, and the dissection was carried to the nasal side of the eyeball. Two or three stitches were then put in the lower portion of the flap as it was necessary to fasten it somewhere. That allowed a stretching of the conjunctival flap considerably and the lower lid is now entirely free from the cornea, with no symblepharon. Dr. Hawley stated that the next operation would probably be to try to restore the sulcus for the lower lid. At the present time the condition is very much improved, and the case was shown so that it may be shown later in the second stage.

Mr. Max Poser, Rochester, New York, spoke on the evolution of ophthalmic lenses, describing a new system of designating their powers. His remarks were illustrated by numerous steropticon slides.

A vote of thanks was extended to Mr. Poser for his instructive lecture.

PAUL GUILFORD, Secretary.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting, held February 16, 1915, with the president, Dr. George W. Boot, in the chair.

SPECIMEN OF LYMPHANGIOMA.

Dr. J. R. Fletcher showed a specimen of lymphangioma which was removed in August, 1914, from a boy, sixteen years of age. During treatment by another physician it was noted that there was a great deal of hemorrhage, and that the growths were rather solid. The conclusion was reached that the trouble was serious. Sections showed a myxofibroma. Sections made by the speaker were pronounced to be lymphangioma. The whole nose was filled with a great mass. X-Ray pictures were taken, showing the antrum, nasal, post-nasal and spheno-maxillary fossae filled with the mass. When operating, Dr. Fletcher went into the antrum underneath the cheek. From there he took down the entire lateral nasal wall and took out the tumor mass from the nose. This caused terrific hemorrhage. Then he dissected toward the tumor protruding under the zygoma, and got out the smaller of two large masses. Another large mass was felt, which he loosened all around, so that it was movable with the forceps. Traction would not bring it because it proved to be attached to a large mass in the post-nasal space. He then loosened the latter from its attachments, which were broad, and removed it with a No. 8 wire snare, releasing thus the mass in the spheno-maxillary fossa. Having also curetted out

the antrum, he supposed he had all of the tumor out. Three weeks afterwards he found another mass occupying the sphenoid. He could go three-fourths of the way around it, as though it grew upward from the floor. With a curved knife he liberated the mass and got it out. This mass was about the size of the end of his thumb. He presumed that it had broken down the wall. On looking into the nose now, after healing, he could see a mass protruded, and that it is a peculiar lip of bone, which is the floor of the sphenoid. It seemed to have developed between the post-nasal and the sphenoid in the masses. It may be malignant, but that question will be settled in the near future. The speaker hoped to refer to the case at a later meeting, and give the result of such examination.

DEMONSTRATION OF A NEW HEARING TUBE.

Dr. Robert Sonnenschein demonstrated a hearing tube which appeared to be very satisfactory. There are a number of such tubes on the market, of woven material over wire coils, but these are very large. There is also in this country one metal hearing tube, which is, however, much larger than the one he presented, and does not transmit sound quite so well. The speaker's attention was called to the tube he showed by a patient who has a very marked otosclerosis, in which the nerve is markedly affected. This patient is selling this tube as a means of livelihood. Without the tube he does not hear whisper at all. With it he can hear the ordinary low tone very distinctly, and the ordinary conversational tone very loudly.

The advantages of the tube are: First, it is made of oxidized copper and does not corrode. Second, both ends are detachable and can be boiled. Third, the tube is so small that it can be carried very easily. It is flexible. So far as the speaker knows, it has only one disadvantage, namely, its cost. It is an English product and somewhat expensive. The majority of tubes cost about five dollars, but this one will be ten dollars, less twenty-five per cent to physicians. If the latter is willing to forego a commission, the patient can have it for $7.50. The tube appealed to Dr. Sonnenschein because even the very slightest whisper, spoken in the midst of a noisy room, can be very easily heard by the patient above referred to, when using it.

THE INFERIOR TURBINATE.

Dr. John A. Cavanaugh is not of the opinion that a part of the inferior turbinate forms a portion of the lateral nasal wall, as all anatomists would have us believe, for he has not been able to find, even in the fetus, the signs of a suture, which he thinks one would find if it helped to form a part of this wall. He thinks the bone develops in the rudimentary turbinate and unites to the lateral wall, thus causing a thickening of this area, and with the antrum developing on one side and the nasal cavity on the other causes the lateral wall to thin out and gives it the appearance of a part of the inferior turbinate bone. There seems to be but little change in the relations of the inferior turbinates and the surrounding walls from birth to the fourth year, but after this time there is a greater prominence of these bodies. He has measured the thickness of the mucous membrane in children from four to ten years, and found it to vary from 1 to 3 mm. All turbinates are thickened in the posterior portion. The bony portion of the inferior turbinate at birth is well developed, being from 18 to 20 mm. long, and from 2 to 4 mm. in width. The free edge of the bone is corrugated and measures about 2 mm. thick; as it approaches the attached portion, it thins out from 0.5 to 1 mm. in thickness.

The adult inferior turbinate does not vary from that of the child, except in its size, being much larger. Its length varies from 38 mm. to 48 mm. Some are long and narrow; others short and wide. Some extend into the nasal cavity in a slant from the lateral wall; others in a scroll effect, while others lie almost on a horizontal plane. From the opening of the nostril to the anterior end of the turbinate measures from 16 to 20 mm. The width of the bony part of the turbinate varies from 12 to 16 mm. The free edge of the bony turbinate is from 2 to 3 mm. thick, and is the dense part of this body. The mucous membrane covering the turbinate body varies in thickness from 2 mm. to 9 mm.

The blood supply is derived from branches of the anterior ethmoidal arteries anteriorly, and the sphenopalatine artery posteriorly.

Dr. Cavanaugh believes the turbinated bodies have not received the consideration they should, because he thinks they mean more to the human economy than most rhinologists would have us believe. There are three types of turbinates which attract attention, excluding, of course, the malignant and non-malignant tumor types. These are the intumescent, hypertrophy of the mucous membrane, and hypertrophy of the bony part, the mucous membrane being practically normal.

He thinks the rhinologist is responsible for much of the slaughtering of the inferior turbinate, and he thinks it is time we should accept a means of caring for these conditions in a way that will not interfere with the normal function of these bodies. He considers it a great exception where an inferior turbinate should be totally removed. The septum should always be our point of attack if by so doing we can preserve a turbinate and accomplish our purpose.

Operations on the turbinates are many, but the cautery seems to him to be the one must universally used. The chemical cautery, in his opinion, is not worthy of consideration. The galvano-cautery is only of value in the turgescent type. There are many advocates of this treatment, but the speaker thinks it has many faults. It gives the charlatan an opportunity to use it as a cure-all for nasal diseases, causing destruction of functional membrane. It destroys normal tissue for some distance from the field of application, and it leaves a large area of non-func-

tionating scar tissue, with a great liability to a synechia. The speaker then made reference to the methods of treatment advocated by Douglas, Westerman, Horn, A. H. Andrews, Freer, and Yankauer.

The method of operation Dr. Cavanaugh advocates is as follows: He uses a ten per cent cocaine and 1:1000 adrenalin chlor. If the entire membrane is at fault, whether it be intumescence or hypertrophy, he makes an incision from behind forward at the lower and internal surface down to the bone, then a corresponding incision on the lower and outer side, which makes somewhat of a triangular piece of mucous membrane with its apex attached to the bone; elevates the mucous membrane with a sharp elevator from the bone on the outer and inner side for one-eighth inch from the anterior surface all along the long axis of the turbinate. He then takes a Myles' alligator biting forceps and bites out a part of the bone with the triangular mucous membrane area, which can be done with but little difficulty. When this is removed the Yankauer crotch forcep is used to draw the cut edges together to make sure that no tension will be necessary on the stitches which pull the flaps together. Silk is used instead of catgut for suturing. When this is done, he places on the under and inner sides a piece of cotton or gauze removing it in twenty-four hours. The speaker has packed some cases without sewing, but the results have not been as satisfactory. This method of dealing with the turbinate is surgical, and after a section is removed, whether it is turgescent, hypertrophy of bone or soft tissure, a structure is left which has practically no connective tissue to interfere with its normal function.

DISCUSSION.

Dr. J. C. Beck thought Dr. Cavanaugh had not covered the subject from the pathological standpoint sufficiently. He presented forty-two histological specimens of inferior turbinates, which represented ten different pathological types. There are not three, as Dr. Cavanaugh stated, but ten, and they play an important part in the therapeutics, particularly as to the result of operation. First, there is the *turgescent* type, in which the vessels are dilated, the venous channels are distended and not much reactive inflammation—just that inflammation which would result from congestion. Second, the latter effect of that condition, namely, *inflammatory*, from the result of the irritation of this large turbinaed body, and in this we find not only the inflammatory condition in the wound cells, but, thirdly increase in the *epithelium*, so that we have a change in the epithelial structure almost like a hornification, a folding in of the masses of epithelium. Then, fourthly, you will find a changed condition in the inferior turbinated body in the bone proper; that is, the *bone is hypertrophied*—an actual osteitis. Fifth, there are conditions secondary to systemic conditions, which Kyle of Philadelphia has especially called attention to, the *cyanotic inferior turbinates*, secondary to cardiac disease, in which we find a chronic edema in the inferior turbinated body. That is a true pathological condition in the turbinate, but secondary, the same as anasarca in any other part of the body. Sixth, is the so-called *"mulberry enlargement,"* which Dr. Cavanaugh left out entirely in his paper. These changes we are all accustomed to find in the large posterior ends of the turbinate, which hang into the post-nasal space, so to speak, or against the Eustachian tube.

The seventh form of pathological change is *atrophy*, which is of various forms; for instance, as found in genuine ozena, in which the epithelium is in a metaplastic form, with shrinkage of all the other components of the turbinate, or secondary shrinkage and substitution by scar tissue, as following or associated with chronic suppurative sinus disease or following or associated with luetic ozena. The eighth form is the *primary tuberculosis* of the inferior turbinate, which is characterized by chronic inflammatory changes and the pathognomonic findings of the giant cells, etc. Dr. Beck reported a case like it in *The Laryngoscope* several years ago. It is also found in Ballenger's textbook.

The ninth variety of pathological change is the *sarcoma* or *carcinoma*, which is very well recognized from the characteristic histological findings.

Finally, the tenth type is the *miscellaneous*, such as other forms of neoplasms and inflammation, as, for instance, angioma, fibroma, myxoma, chondroma and actinomycosis, rhinoscleroma, etc. All these have their characteristic histological change. Dr. Beck has specimens of most of these conditions and would be glad to demonstrate the sections.

Regarding cautery, those turbinates which he found had a great deal of epithelium gave practically no result; in fact, they were made worse by cauterization. There was increase in the epithelial growth and increase in the swelling of the turbinate following linear cauterization. Whereas in those cases in which the punctures were made the results were very good. In bony hypertrophy only the removal of some of the bone will give good results.

It is the speaker's belief that the operation described by Dr. Cavanaugh and as recommended by Yankauer and Freer is a case of "much ado about nothing," and not worth the trouble. He has been practicing the following: If the lower edge of the inferior turbinate and posterior end are large, they are removed by snare and the lower edge of the mucous membrane is turned up, part of the bone removed, so that the mucous membrane will cover the bone when brought down again. Where the enlargement is not so great he has been satisfied with a process he calls the crushing of the lower edge of the turbinate, not producing necrosis, but a necrobiosis. The instrument used will be described in the next number of the *Annals of Otology, Rhinology and Laryngology*. This procedure has been absolutely satisfactory in his hands. It is a slow death, so to speak, of that tissue which is not functionating. In conclusion, the speaker thought the society was indebted to Dr. Cavanaugh for his timely paper.

Dr. Robert Sonnenschein referred to a method that Dr. Pierce used, in which he simply made a small incision at the anterior end of the inferior turbinate and then introduced a probe along the bone, thereby setting up an inflammatory reaction in the latter, which is the object of the electrolysis, but in this case there is no destruction of tissue, less reaction, and almost as good results as those claimed by those who practice submucous electrolysis.

Second, with regard to carbon dioxide snow it is very easily applied, except that it is necessary to have an experienced operator. He had seen Dr. Gradle operate on one or two cases, and had examined the patients two months later, and they showed good results, but he could not say anything as to its permanent effect.

Dr. H. W. Loeb, of St. Louis, would like to ask if the measurements were taken by Dr. Cavanaugh in fresh heads or preserved heads, and if taken simply with calipers or reconstructed. The error will be tremendous unless they are reconstructed, and unless one admits that the distances in the living are not at all like those found after death. Since the development of the submucous resection, the speaker's opinion, from his own practice, is that the inferior turbinate comes very little into play by way of treatment, whereas formerly much unnecessary operative procedure had been employed. He is inclined to agree with Dr. Beck that when one has a posterior turbinal hypertrophy, or hypertrophic condition, or cystic condition, in the posterior portion of the turbinate, there is no use doing anything except to remove it. He simply cuts it off and pays no more attention to it. He does not adopt the refined method of Yankauer or Freer, or the somewhat angiotribe-like method of Dr. Beck.

Dr. Charles M. Robertson has been practicing rhinology long enough to have been through all of the fads, and he has bored holes under the turbinate and through the turbinate and punctured the turbinate with galvano-cautery and with chromic

acid, and so forth, as all the rest of the older men have. And as he gets a little bit older he gets a little bit more conservative about the use of the knife. He has found that very many of these cases of so-called turgescence are general conditions. He thinks we ought to keep that in mind, and not deal with these conditions surgically until we have treated the case as a physician should.

As regards the surgical treatment of the turbinate, he is agreed with Dr. Beck. When there is a hypertrophy of the bone, when there is too large a dilatation of the venous sinus, he takes off the lower edge of the inferior turbinate and sacrifices the posterior end.

The speaker has seen scabbing in the clinic once in a great while after an operation on the turbinates, but it was always after somebody had operated who had haggled the tissue on the edge of the turbinate and not cut it smooth. If we cut off the lower edge of the turbinate, which is devoid of venous sinus and glands, the part becomes depleted and the mucous membrane falls down and forms a *V*, the little pieces of mucous membrane coalesce, so that after twenty-four or forty-eight hours the mucous membranes are in apposition, and you do not have to take out any stitches or wait for them to heal. In case of the patient being a bleeder, it might be necessary to adjust the edges of the little flaps and coapt them. This can be done, if you wish, by a galvano-cautery, or it can be done by black silk sutures, or by putting a little pack in.

Dr. Cavanaugh, in closing the discussion, said he expected what he got, and a whole lot more, but appreciated what all the members said, and was sorry that there was not more discussion. The pathological side was briefly mentioned because he was not prepared to present the subject from a histological standpoint.

In reference to Dr. Sonnenschein's remarks about the use of the probe along the periosteum, Dr. Cavanaugh has not had any experience, but did not think it would do the work in most of these cases. If there is a true hypertrophy, there would not be much contraction; and in turgescent cases, the vessels being dilated, he could not see how the operation spoken of would take care of it. Still it might.

Answering Dr. Loeb's question about measurements, those of the bony turbinates were taken in the cadavers, while the measurements with the mucous membrane were taken in the living subjects, some after shrinkage, and some before, but all the measurements mentioned in the paper were taken without shrinking.

Dr. Robertson's remarks might be timely to the younger men, but the speaker may lay claim to a few gray hairs. He has not had Dr. Robertson's experience, yet believes one could not say whether or not these turbinates were functionating by their microscopical appearance. Dr. Robertson can tell whether these turbinates are normal only by microscopical specimens as they show the actual changes in the turbinates, and Dr. Cavanaugh thinks that is what has to be done in all these specimens to get a foundation. It is very easy to look into a nose and see what we might call a nice turbinate, but when it comes to the true functionating part of that turbinate, the speaker believes a specimen should always be removed and microscopical sections made, in order to prove the point.

LOCAL VERSUS GENERAL ANESTHESIA IN NOSE AND THROAT OPERATIONS.

Dr. Joseph C. Beck first considered local anesthesia, referring especially to the work of Kohler with cocaine. Owing to the possibilities of cocaine poisoning, there was a demand for substitutes, of which tropococaine, alypin, eucaine, beta-eucaine, novocaine, stovain, quinine and urea hydrochlorate are some of the most important that have been recommended. In addition, it was found that local applications of solutions of adrenal gland extracts aided the anesthetic effect, as well as prevented rapid absorption of the poison. Up to the time novocaine was brought forth as a local anesthetic it had been the speaker's experience that none of the above mentioned substitutes did the work as well as cocaine, and even now he finds that in some cases he has to resort to it in order to get anesthetic effects. He only remembers one distinct case of cocaine poisoning in a boy nine years old, followed by perfect recovery.

The speaker's experience with spinal anesthesia by means of stovain, as advocated by Jonnesco, had not been satisfactory.

Under general anesthesia he considered ether, chloroform, nitrous oxide, alcohol, chloroform and ether (A. C. E. mixture), bromide of ethyl, chloride of ethyl, somnoform, morphin, scopolamine and hyoscine. From 1895 to 1901 it was his custom to employ chloroform as the general anesthetic in preference to ether, and he could say unhesitatingly that the results were much more satisfactory as he never had a death from its use, and did have one death from ether. Nevertheless, following the general cry against chloroform, he gave up its use, only employing it in rare instances. He uses it almost exclusively in infants, especially in cleft palate operations. The anesthetic that he employs is ether, and he gave the method of its use in nasal, mouth and throat operations.

Dr. Beck wished to call attention to one of the most important questions, as to the choice of a local or general anesthetic. He referred to the work of Crile on the effect of mental shock or fear on the repair of the tissues after operation, and on the deleterious effect of this mental shock and fear on the nervous system. He is sure that every operator has observed what is termed post-operative neurosis, which is analogous to the post-traumatic or post-partum neurosis. He did not wish to say that one never sees the post-operative neurosis in general anesthetic cases, but certainly they are not nearly so frequent. He believes that if one would follow the teaching of Crile in applying the method of anoci-association, by blocking off locally the nerves by injecting novocaine solution, one would see fewer of these cases following the use of general anesthesia.

Another important point in the choice of a local or general anesthetic is the question of pain that is experienced even in a thorough local anesthetic. Pain is a relative phenomena, and different individuals are more or less susceptible to it. A still more important factor is the ability to do thorough removal of the pathologic processes and the proper stopping of bleeding and application of dressing, which often is not possible in a very nervous patient. A fourth reason for the use of general anesthesia in preference to local is the strain on the operator when working under local anesthesia. The one great advantage in the local anesthetic is the saving of time both for operator and patient, but Dr. Beck doubts very much whether this factor can be taken into consideration after having stated the advantages of the general anesthetic. (Dr. Beck demonstrated the apparatus which he uses for general anesthesia.)

DISCUSSION.

Dr. George E. Shambaugh believes that the question of an anesthesia, both local and general, is a much more important feature of operation than it is usually given credit for; especially is this true for those doing nose and throat work. First, as regards general anesthesia: Dr. Shambaugh advocates strongly the employment of a trained anesthetist, especially for the removal of tonsils and adenoids, or other operations about the nose and throat.

At the Presbyterian Hospital they find it unnecessary to resort to any special method of giving the anesthesia. The simple drop method is employed until the child is thoroughly under. The patient is then turned over on the side, the operator sitting down in a chair. No especial provision is necessary here for continuing the anesthesia, or for taking care of the bleeding, since the blood runs naturally out of the mouth and is not inhaled. If the reflexes return before the operation is completed, the cone is again replaced over the face and ether is given for a short period. As a rule, no additional anesthesia is required for a tonsil operation.

All special apparatus for administering anesthesia or for pumping blood out of the throat is adding so many more things to get out of order and to complicate the operation. The operator who has had experience gets along with very few instruments and the same is true of a trained anesthetist. In some places the expert anesthetist seems to have had a mania for devising elaborate and unnecessary instruments for doing something which is very simply and just as efficiently done without them.

The danger of inhaling blood during the tonsil operation is when the patient is on the back. It is not without risk. The speaker knows of two cases occurring in Chicago last year where lung abscess developed from this cause. This danger can be entirely obviated by placing the patient on the side, as already described.

As regards local anesthesia for tonsil work, Dr. Shambaugh finds that he succeeds much better now than he did a few years ago. A great deal depends upon the technic. He never uses stronger than five per cent cocaine rubbed on the surface, and injects five-tenths per cent novocaine. Injections are made at three points only for each tonsil: The posterior pillar, at the lower pole of the tonsil, and into the capsule; the latter is accomplished by pushing the needle through the soft palate. He finds it exceptional for a patient to experience pain during this operation. He does have cases, however, where it is impossible to get complete local anesthesia. This is always the case where there have been dense cicatricial formations complicating the peritonsillar abscess, but it may also occur in the simpler cases. He has found that wherever the application of five per cent cocaine and adrenalin results in a local anemia that a satisfactory anesthesia is assured, and it is only in cases where the application of this solution seems to bring on a local congestion that he has experienced any trouble in getting a proper effect.

For the operations in the nose he has discarded entirely the stronger cocaine solution and uses the five per cent made up in adrenalin. He has found that he gets just as complete anesthesia with five per cent as with a twenty per cent.

Dr. D. T. Vail, of Cincinnati, by invitation, said that he had nothing but words of admiration for Dr. Beck's paper. He was, however, in harmony with Dr. Shambaugh in his remarks pertaining to professional anesthetists bringing complicated anesthetic apparatuses to the operating-room, taking up valuable space and detracting from the operation by constantly calling the attention of the operator and others present to the splendid demonstration as to his ability to give mixed anesthesia and have the patient come through alive. He recalled two deaths from anesthesia in his own experience. In each case there was a tumor involving the antrum of Highmore, which extended into the sphenoid cavity. As it was very important to have the patients properly anesthetized, he employed expert anesthetists in each case, who brought to the operating-room a complicated apparatus which required as much skill in manipulating as a pipe-organ. In one case the patient died three days after the operation, never having come out of the condition of shock, rapid, thready pulse, cyanotic expression, etc.; in fact, the heart whipped itself out. In the other case, the patient, a little boy of twelve, was deluged with a mixture of all kinds of anesthetic gases from an elaborate apparatus, and he died on the table. Since these experiences the speaker is satisfied to use the Esmarch mask and have the other poured on drop by drop, watching the patient go through the various stages of anesthesia to complete narcosis.

Dr. J. R. Fletcther uses both general and local anesthetics. The drop method and various devices are unsatisfactory. While we should not work against time, as formerly, both tonsils can be removed and bleeding points tied in a few minutes under continuous deep anesthesia. He has seen five deaths from anesthetics, for but one of which he must answer. This patient died after cocaine-adrenalin injection, as he always does it, using about one-fifth grain to the patient. The question remains, What caused his death? The speaker has continued to use the same solution, namely: Cocaine, one grain; adrenalin, twenty minims; normal salt solution, eighty minims, for years, even in small children, without bad effect. When the above injection is made in blisters around the tonsil, either with or without general anesthesia, no suction is necessary, as the amount of hemorrhage is very small.

Dr. Ira Frank said that to those doing the Killian suspension this method is far superior to any he has tried. He has not the elaborate apparatus exhibited, but still a very satisfactory one, with the foot pump. There is only one precaution he would like to mention, namely, not to pump too fast, because the patients get a direct inhalation of the ether. A few days before he had been able to do a complete suspension, demonstrate the larynx to those present, and take out both tonsils and adenoids, and the child was still asleep.

Dr. H. Kahn wished to refer to the post-operative acidosis and acetonuria which follow carbohydrate starvation and are due to changes in the liver. He has found that the use of four per cent glucose injected into the rectum either before or following operation is more effective than the use of sodium bicarbonate. If in those cases that seem likely to have an acidosis—illy nourished children and people who are afraid—you will feed them candy or sugar some time before operation, you will have better results. The speaker believes the acidosis is due to starvation, and, therefore, changes in the liver, so if you feed them candy and fill up the liver with sugar you will have less acidosis, and the sugar is an effective agent rather than the sodium bicarbonate.

Dr. H. W. Loeb, of St. Louis, noted Dr. Beck's casual mention of his growing tendency to use a general anesthetic for submucous resections, referring to the fact that some men were able to do these under local without pain by virtue of their hypnotic powers. Dr. Beck's contention, of course, is that these patients have some neurotic result. The speaker thought that the neurotic results from using a local anesthetic come primarily from other neurotic conditions. He cannot see why anybody wishes to use a general anesthetic for a submucous resection. The speaker's patients complain of only one thing, namely, the removal of the packing after operation.

Another thing, namely, Dr. Beck's plan of following out the anoci-association of Dr. Crile. He should carry out the other suggestions of Dr. Crile, to the end that the patients never know when they take the anesthetic. Of course, this refers more particularly to goiter operations. If we are to get the full value of anoci-association we should not only block off everything, but also the impressions which the administration of the anesthetic causes.

Dr. Robert Sonnenschein wishes to suggest one thing in reference to the patient referred to by Dr. Fletcher, who died under local anesthesia for tonsillectomy, and that is, if he heard aright, that twenty minims of adrenalin were used. Freudenthal of New York showed in an article a few years ago that adrenalin when used in quantities more than about 10 minims of a 1/1000 solution has caused death in a number of cases where it alone was used; therefore, eliminating the fact of the cocaine. He showed conclusively that a great many of these cases of sudden death during local anesthesia were typical adrenalin deaths, with very marked pallor, small, thready pulse and death in a few moments. He warned strongly against the submucous injec-

tion of large quantities of adrenalin. It seemed to the speaker that in using Schleich method it is not necessary to use the adrenalin, because the mere injection of salt solution will give a very marked anesthesia when adrenalin is omitted.

As to the removal of the packs, if the famous Beck paste is applied on splints, such as the cotton nasal splints, on both sides at the time they are inserted, it is usually very easy to remove them on the following day.

Dr. J. R. Fletcher said, in answer to Dr. Sonnenschein, that the whole formula called for 20 minims: only 15 minims of that were used, namely, a dose of 20/100.

Dr. R. H. Good said he had had two very interesting cases lately of which he would like to speak. The first was a young boy of fourteen in whom he did an operation on the middle turbinate. There was some hemorrhage, which, however, stopped in a minute or two. Then he proceeded to remove the tonsils, first injecting novocaine around the tonsils. In a minute or two after injection the boy began to complain of ferrific headache and the nose began to bleed profusely, which the speaker thought would stop in a minute, but after five minutes he was obliged to pack in order to control it. He complained of such severe frontal headache that he had to lie down, and it was impossible for the speaker to proceed with the operation for seven minutes. That was the first case of that kind he had had up to that time, but a week ago he had an adult in whom he injected novocaine—a two per cent. solution—and the same terrific headache appeared. He is satisfied that the novocaine caused this headache.

It has always been said that we should wait for fifteen to twenty minutes for anesthesia after injecting novocaine. The speaker does not find this the case. Immediately after injecting he begins to operate and thinks the anesthesia is better.

He has been using the Brophy anesthesia outfit for at least twelve or thirteen years and has had no trouble in keeping the patients asleep, providing the apparatus is used properly and kept in good repair.

Another important point about this method of anesthesia, namely, the tube that goes into the ether, should have fifty or one hundred holes in the bottom of a ball-like, enlarged end, which is immersed in the ether, so that the air comes out of fifty or one hundred holes in small bubbles through the ether. In this way you can keep any patient asleep without a warm bath or motor. The speaker does not like the noise of a motor. Furthermore, you have a new interne every week or month and, with a warm bath and a motor the ether is escaping all the time and you can easily put a patient to sleep too deeply with this method. The simpler the method used the better.

You could not hire the speaker to use cocaine for submucous injections in tonsillectomies. He has had considerable experience with it and would not use cocaine subcutaneously for tonsils so long as we have novocaine to substitute for it.

Regarding general anesthesia in adults for tonsillectomies he gives it occasionally, when he has to, but keeps away from it whenever he can.

Dr. A. A. Hayden thought what Dr. Shambaugh said about the ischemia taking place, especially in tonsil cases, as being an index as to complete anesthesia, is very important. When the low percentage of adrenalin is used and the parts become pale, the anesthesia is always complete. When they do not become pale it is not complete, in the speaker's opinion.

Regarding the apparatus presented by Dr. Beck the speaker wished to recommend it strongly. A few years ago he was prejudiced against all apparatus of this sort by seeing a very noted surgeon use an apparatus of his own, and it took him an hour or two to get out the tonsils. And so he was prejudiced against such methods until Dr. Bergeron introduced an apparatus of the kind shown by Dr. Beck into St. Joseph's Hospital. He persuaded the speaker to use it and he found that it was not a contrivance that would make the operation longer, but, on the other hand, very much shorter, if properly used. So, the apparatus exhibited is very satisfactory, in his opinion.

Another interesting point is that the operator can pretty well tell the coagulation time of the patient's blood by what is in the bottle. It clotted at the end of the operation (saying the operation took five minutes), it is a very fair estimate that the coagulation time of the patient's blood is normal. If not, it is a fair estimate that the coagulation time of the patient is not normal and that we should look more carefully to every hemorrhage.

Dr. George W. Boot said that for the last six years they have used a much simpler method than that of Dr. Beck in the Children's Memorial Hospital. In this method they use the old-fashioned paper cone, covered with a thin towel. There is a nurse who gives the anesthetics and takes x-ray pictures. Using this apparatus, she will habitually put the children to sleep with two ounces of ether for tonsillectomy and the operation is done in this way in from ten to fifteen minutes. The ether is given until the patient is far enough asleep to take out one tonsil. The inhaler is then put back while the snare is rearranged. By the time the wire is ready for the next tonsil the patient is far enough asleep for the second enuclation. That is done and the adenoids taken out without any further anesthesia. The ether does not have time to get fixed in the tissues. They have never had a death from the anesthesia since using this method.

With regard to the use of chloroform he thinks there is only one class of cases in which its regular use is justified and that is in alcoholics.

He would like to speak of another point, namely, doing mastoid operations under local anesthesia. He has done four such operations under local anesthesia. Two of these were in children sick with scarlet fever. One was in a man who was far advanced in tuberculosis and had chronic Bright's disease. The fourth was in a man who did not want to take ether. In all four the operation was done very well under local anesthesia, using novocaine.

Dr. Beck, in closing, said that he knew very few would agree with him and he sincerely hopes that by the time the subject was presented again by someone else a good many would have changed their minds, because he honestly believes that if it were left to the patient whether he wanted local or general anesthesia (if he had been operated on before under ether) he would prefer general anesthesia.

In regard to the drop method of anesthesia Dr. Fletcher answered that point—the patient is not asleep long enough. You cannot do good work unless you are a rapid operator when you use the drop method of anesthesia.

Regarding deaths from anesthesia the speaker recalled four, all when ether was employed. One of these occurred in Dr. Gradle's practice. The speaker operated on a brain abscess and the patient died on the table. He was very low before and during the operation and there is a question whether he died from the anesthesia or from the brain abscess. The second case was one he had reported to this society four years ago, which occurred in a colored man who was operated on for meningitis. In this case it was discovered port-mortem that the man had only one kidney, which was cystic, and the other was an infantile kidney. He had a uremia and so the anesthetic perhaps helped him along a little sooner.

In the third case the patient was operated on for tonsils and adenoids and the child died on the table while the assistants were operating. Dr. Le Count made a post-mortem examination and an enormous thymus was found, a status thymicus. In trying to find the vessel for injecting adrenalin as a restorative measure they could not find a large enough artery or vein to do so. The fourth case was out of town and in this case he felt sure an overdose was responsible, namely, no attention was paid to the amount given and the patient was simply drowned in the ether.

Dr. Fletcher had called attention to a death from a local anesthetic and the speaker said he was looking at Dr. Loeb to remind him that deaths had been reported before from local anesthesia. How about the cases that he (Loeb) operates on under general anesthesia? Perhaps he meant to say he would not use general anesthesia unless he had to. That is only discussing a little point in a big question. Dr. Beck would say that the general anesthetic must be made as safe

as possible and a good anesthetist employed, upon whom you can rely, and then you need not fear death from ether anesthesia. So, after all, it is not the question of finding objections to the general anesthetic, but the manner in which the anesthetic is administered.

Dr. Kahn spoke of glucose instead of bicarbonate of soda. Dr. Beck only knows that since using the bicarbonate of soda, whether scientifically proven or not, it has seemed of value. He could only take Dr. Lynch's word for it, from his experience. Dr. Lynch lost his own child from acetonuria following an operation and went into the subject carefully, having made experiments, and he thinks that bicarbonate of soda is of value to prevent the acetonemia. It is used in diabetic cases where general anesthesia is employed. The glucose may be better. The speaker would like to think it over.

In answer to those who spoke of the apparatus exhibited as elaborate he would state that a great deal of comfort is attained by operating with the patient asleep, with no blood in the throat and mouth, not covered with a mask, which is worth all the elaborateness of the apparatus.

In regard to the removal of packing being painful he would quote Dr. E. Fletcher Ingals in giving an anesthetic to remove nasal packing. He has reported that to this society some two years ago. The speaker, however, has never done this.

Regarding anoci-association the speaker uses it, but not with perfume. There is no speaking allowed in the room while the patient is being anesthetized.

Regarding the motor in the apparatus exhibited and the noise it makes Dr. Good's objection to it is perfectly correct. The speaker thought also that the foot bellows would be better, but the foot pump is constantly getting out of order and so he had done away with it. He thinks the method of giving the anesthetic with this apparatus is simpler and easier than with a foot pump and so he uses the motor attachment.

Dr. Sonnenschein spoke of death from the use of adrenalin. The speaker two years ago reported on the use of adrenalin in otosclerosis. He has used it since then, as high as fifteen minims every other day, and has seen nothing but the symptoms that result from adrenalin. Those of the members who knew Hansen's experiments on adrenalin would know that fifteen minims are not toxic. He did not think that death in Dr. Fletcher's case was due to the adrenalin.

Futterhoff of Philadelphia has reported on death from sudden shock due to distension at the muco-cutaneous junction in connection with the submucous operation. Dr. Stubbs reported on this very fact at one of the meetings of the society several years ago.

Regarding the point brought up by Dr. Hayden as to blood clotting the coagulation time is determined as nearly as possible before operation.

Regarding chloroform the speaker had said in his paper that he would use it in infants. There is quite a call for it in such cases, but not in older children or adults.

In conclusion he would like to recall the statistics given by Rovsing three years ago to the American Medical Association, in which he stated that 50,000 ether anesthetics were collected without a death, 27,000 chloroform, nitrous oxide and other forms of anesthesia with sixteen deaths.

VALUE OF FULL TIRE INFLATION.

Many tire experts agree that more than half of the number of tire troubles are due directly or indirectly to underinflation. As it is, in the case of the pneumatic tire, not the rubber but the air carries, suspends and cushions the weight of the vehicle, everything, of course, depends on having as much air as possible in the tire tube, without approaching the breaking point of the rubber at the weakest place of the tube. Every molecule of air which can be safely held in place in the tube helps to do the work for which the tire is employed. Incidentally, it keeps tube and casing in the most desirable form for which they are designed, and holding them rigidly, offers stones, nails and other road sundries such resistance as is needed to make the impact harmless.—*The Automobile.*

CRAWFORD COUNTY

Crawford County Medical Society met in regular monthly meeting in the Carnegie library, Robinson, July 8, 1915.

The meeting was called to order by the president. C. E. Price was appointed secretary pro-tem.

The members and five visitors were present.

Paper: W. W. Arnold, "Medical Jurisprudence from the standpoint of the Attorney."

Paper: Dr. E. B. Cooley, "Medical Jurisprudence from the standpoint of the Physician."

These papers were well received and freely discussed by the attornies and the physicians present.

Mr. Arnold and Dr. Cooley were given a vote of thanks for their papers.

The following officers were elected: president, Dr. A. G. Brooks; vice-president, Dr. J. B. Cato; secretary, Dr. C. E. Price; censors, Drs. Voorheis, Henry, and Rafferty; delegate, Dr. Lowe and Dr. Henry, alternate delegate.

The secretary-treasurer's report was read, and upon motion was received by the society.

It seemed to be demonstrated that the meetings are better attended and more interest taken since the adoption of the monthly instead of the bi-monthly meeting. The papers are better prepared, and fewer falling short since the printing of the full year's programme at the beginning of the year. We have invited members of adjoining counties to participate in our programs.

At this meeting we had a member of our own legal profession with us, and Dr. E. B. Cooley, our councilor; and it was a very enjoyable as well as an instructive meeting. C. E. Price, Secretary.

Regular meeting, August 12, 1915.

The Crawford County Medical Society met in regular monthly meeting at Heathsville, August 12, 1915, with the president, Dr. Brooks in the chair.

Ten members were present. Both Dr. Jones and Dr. Mohler "who made up the program" being absent, the president called upon each member and assigned him a subject to address the society and a good meeting was the result.

The subject of "Enterocolitis" was discussed by Drs. Taylor and T. N. Rafferty. "Malaria" was discussed by Drs. Illyes, Taylor, Voorhies, Ikemire, and Cato. Several cases were reported along the Wa-

bash at Heathsville; plenty of mosquitoes, reported at Hutsonville and Palestine, but no malaria. The mode of mosquito infection and procreation was discussed by others. Dr. Illyes reported a case of suspected smallpox.

Dr. H. N. Rafferty as delegate to the state meeting gave a very pleasing report of the state meeting.

This meeting was held at the beautiful country home of Dr. Illyes, where the ladies spent a very pleasant afternoon with Mrs. Illyes; and at 5 o'clock everybody was invited to the dining room, where the tables were groaning under their loads of broiled chicken and every thing that goes with them in the way of vegetables and fruits.

Everybody left feeling they had been well paid for attending this meeting, and feeling sorry for those who could not attend.

The next meeting will be held at Flat Rock, September 9, 1915.

MACOUPIN COUNTY

Macoupin County Medical Society met in regular session in the Opera House at Palmyra, Illinois, July 25, 1915, and was called to order by President E. R. Motley, of Virden. After reading the minutes of the previous meeting and treasurer's report President Motley gave a brief address after which he introduced the new president, Dr. M. McMahon, of Palmyra, who gave his inaugural address. Dr. McMahon filled his speech with the ideas of enthusiasm and progress which are to be the watchword of the Society for the coming year.

The proposed amendment to the Constitution, "a, The regular meeting held in April shall be known as the Annual Meeting and at this meeting shall be held the election of the following officers: president, vice-president, secretary-treasurer, delegate, and alternate delegate. b, The Committee of Censors shall be appointed by the president immediately after his installation," was unanimously passed at this meeting.

Dr. James R. Higgins, of Gillespie, was unanimously elected to membership.

Gillespie was selected as the next meeting place for the Society. The Society then adjourned for luncheon.

At one-thirty the Society was again called to order and Dr. George Richter, of St. Louis was introduced who gave an able paper on "Blood Pressure" which was of practical interest.

Dr. Bertha Van Hoosen, of Chicago gave an able, interesting address on "Scopolamin-Morphin Anesthesia." Dr. Van Hoosen's address was especially directed toward obstetrical anesthesia, being an enthusiastic advocate of its use in that line of surgery.

Dr. George N. Kreider, of Springfield, gave an able address on "The New Era in the Practice of Medicine and Surgery." His talk was along the lines of later methods of diagnosis and treatment and was very comprehensive and interesting considering the time allotted to him.

Dr. E. W. Crum of Palmyra gave a very comprehensive paper on "The Opsonic Index." The paper was an interesting one and showed that the doctor had made considerable research in his efforts to make the paper the success that it was.

The Society on motion unanimously thanked Dr. George Richter for his able address on Blood Pressure, Dr. Bertha Van Hoosen for her able, interesting address on Scopolamin-Morphin Anesthesia, Dr. George N. Kreider for his efficient, exhaustive address on the New Era in the Practice of Medicine and Surgery, Dr. E. W. Crum for his comprehensive paper on The Opsonic Index, the physicians of Palmyra for their royal welcome and all others who have helped to make this meeting a success.

The following officers were installed for the coming year: president, M. McMahon, Palmyra; vice-president, F. A. Rener, Benld; secretary-treasurer, T. D. Doan, Scottville; censors, J. P. Denby, Carlinville, J. N. English, Gillespie, W. B. Dalton, Scottville; program, M. McMahon, T. D. Doan, W. A. Knoop, Chesterfield, J. S. Collins, Carlinville; medical-legal advisor, J. S. Collins; Red Cross, M. McMahon, T. D. Doan, T. W. Morgan, Virden, C. D. King, Gillespie, J. P. Matthews, Carlinville; delegate, T. D. Doan; alternate delegate, E. E. Bullard, Girard.

This meeting was one of the best from every standpoint in the history of the Society. The attendance was large, the enthusiasm great, and the addresses given were among the ablest and most interesting ever presented before the Society.

Attendance, thirty-four. T. D. Doan, Secretary.

MADISON COUNTY

The Madison County Medical Society met at the Harrison Tuberculosis Colony, in Collinsville, August 6, 1915, with president Dr. Lay G. Burroughs in the chair. Twenty-one members and twenty-five visitors present.

A special board of censors consisting of Drs. Cook, Hastings and W. H. C. Smith reported favorably upon the application of Dr. F. B. VanWormer, of Alton, whereupon he was unanimously elected to membership. The following resolution offered by Dr. E. A. Cook, was adopted without dissenting vote.

Resolved: That when a tubercular patient is reported to this society for relief, the chair shall appoint a committee of three members living in the same locality as that of the patient reported, to investigate and act for the society and report at the next meeting. And be it further,

Resolved: That all rules opposed to this resolution be hereby rescinded.

Dr. M. W. Harrison, of Collinsville presented three cases to emphasize his contention that the blue line on the gum is not diagnostic of lead poisoning. One case had a decided blue line but had never been sick with any disease. Two other cases that had been paralyzed for months by lead never had the blue line. Dr. J. W. Fulenwider, a dentist from Collinsville, presented a well written paper on "Mouth Hygiene and its Relation to Systemic Disease."

Dr. O. LeGrand Suggett, of St. Louis, read a paper

on "Urinary Obstruction and its Consequences." This paper together with a specimen illustrating the subject, commanded marked attention, and has also been sent to the Illinois Medical Journal for publication.

Dr. C. C. Morris, of St. Louis, gave us a lecture on "The Technique and Principles of General Surgery." He emphasized asepsis but said that more was done in that direction than necessary. He prepares his patients for operation by ordering a tub bath and shaving, the night before. Nothing more until patient goes on the table when the field of operation is washed with alcohol and painted with tincture of iodine.

A vote of thanks was given to all of our speakers and also to Dr. and Mrs. Harrison for elegant refreshments served at the conclusion of the program.

Adjourned to meet in Marine on the first Friday in September. E. W. FIEGENBAUM, Secretary.

ROCK ISLAND COUNTY

The Rock Island County Medical Society met August 10, 1915, at the Manufacturer's Hotel, Moline. After a dinner at which twenty-two partipicated, the regular business session was held with Vice-president G. A. Wiggins in the chair.

Minutes of the two previous meetings were read and approved. The following applicants were elected to membership; Andrew Grassau, Hillsdale; G. L. Langworthy, Moline; Peter S. Winner, Watertown.

The names of Drs. E. A. Anderson, F. C. Welch, Alfred Stocker and J. D. McKelvey were proposed for membership.

The death of Dr. E. L. Kerns was announced and a committee of three were appointed to draft suitable resolutions.

The following ammendment to the By-laws was read; "An applicant may be entitled to membership, provided he has practiced within the jurisdiction of this society for one year or more. A year's residence will not be necessary to physicians accompanying their application with a transfer card from another Component County Society."

"Some Uses and Limitations of Vaccines," F. L. Lamb, Pathologist Mercy Hospital, Davenport.

"Conservatism in the Treatment of Injuries to Hands and Feet." J. R. Hollowbush, Rock Island.

Informed reports from the meeting of American Medical Association, L. W. Littig, F. J. Otis, E. M. Tala. Both papers proved highly instructive and practical and were freely discussed by members of the society.

The reports from the physicians who attended the San Francisco meeting added interest to the program. Thirty members and three visitors were present. A. E. WILLIAMS, Secretary.

Personals

Dr. Harry A. Pattison has succeeded Dr. Horace B. Dunn, Rockford, as physician of Winnebago County.

Dr. Arthur M. Corwin has been appointed director of publicity and education of the Chicago Department of Health.

Dr. Argal E. Hubbard, for two years medical director at the Ottawa Tent Colony, has resigned and will practice in Peoria.

Dr. William A. Nason, Algonquin, who has been confined to his home for several months, is reported to be convalescent.

Dr. Joseph P. Smyth was elected medical examiner of the Catholic Order of Foresters at its meeting in Providence, August 5.

Dr. Egbert K. Dimmitt, Farmington, has returned convalescent from the Hospital in Peoria where he was under treatment for five weeks and will spend the balance of the summer at Green Mount Falls, Colo.

Dr Frank W. Lynch, assistant professor of obstetrics in Rush Medical College, has been made professor of gynecology and obstetrics and head of the department ,in the University of California., and will leave to take up his new duties September 1.

Drs. Charles J. Whalen, William Noble, Clarence W. Leigh, Nathaniel A. Graves and Michael J. Purcell have been appointed a board of review to examine veteran Chicago Policemen who have been recommended for retirement by the Chief Ambulance Surgeon.

Personals and news items of interest to members of the society are requested for this column.

Dr. J. D. Chittum and family, of Sorento, returned Aug. from a six weeks tour through Missouri, Kansas and Colorado in the doctor's automobile.

News Notes

Note this date!

What date is that?

Why, October 6-8, 1915.

And attend the meetings of the Tri-State Medical Society. Complete program in this issue.

—The Bulletin of the Montgomery County Medical Society for August contains an article by Dr. Charles H. Lockhart, of Witt, on "Pyloric Stenosis of Infancy."

Health News, the official monthly publication of the State Board of Health, containing matter of interest to all practicing physicians and of special importance

wherein it keeps one in touch with developments in public health circles through the state and county, can be had free for the asking. A request addressed to the secretary at Springfield will place your name on the mailing list.

—The administration of the Municipal Tuberculosis Sanitarium is to be concentrated at the institution. Headquarters in the city will be maintained only for the medical director and head nurse. The trustees believe that an annual saving of about $10,000 will be made by this change.

—The Madison County Doctor for August presents a portrait and brief biography of President Lillie. It also contains the usual quantity and variety of news items, showing that Editor Fiegenbaum does not relax his efforts during the period when so many think they need a vacation.

—The State Board of Health has published a series of pamphlets showing the officially adopted rules for the control of contagious diseases, as in force on and after February 16. These include "general rules for the control of communicable diseases;" "scarlet fever," "whooping cough," "typhoid fever and typhoid carriers," "smallpox," "measles," "chicken-pox," and "diphtheria."

—The administration of the Oak Forest Tuberculosis Sanatorium has been formally approved by the advisory committee which consists of Drs. Theodore B. Sachs, Ethan A. Gray, Stephen R. Pietrowicz and Mr. James Minnick. At present the staff consists of eight physicians and fifty-six nurses and there are 586 patients in the institution.

—The twenty-nine cases of typhoid fever in Harvey are said to have been traced to an afflicted employee on the dairy farm of E. N. Wright, near Manteno, from which a large portion of the milk supply in Harvey is received. The employee is said to have gone to Oshkosh, Wis., and the health authorities in that city have been notified and have taken all necessary precautions to prevent the spread of the disease.

—Plans for an addition to the Peoria Municipal Isolation Hospital have been completed and work on the new building will be started early this fall. The new building will be separated entirely from the present hospital. It will be a one-story brick structure and will contain ten rooms for use and care of patients and three wards for observation purposes, with the necessary laboratories and supply rooms. The city council has appropriated $10,000 for the construction of the building.

The services of the Sanitary Engineering Bureau of the State Board of Health are now available to Illinois communities desiring advice and information on questions of water supplies, sewage disposal, garbage disposal, drainage, ventilation and general sanitation of school houses and public buildings and upon other matters which lend themselves to engineering treatment.

Mr. Paul Hansen is now in charge of this bureau and has as his engineering assistants, Mr. M. C. Sjoblom and Mr. H. F. Ferguson.

Requests for the services of the Engineering Bureau should be addressed to the Secretary, State Board of Health, Springfield.

—*Public Health Reports*, August 20, contains the report of Surgeon J. C. Perry on the Chicago Department of Health made at the request of the Civil Service Commission. It is practically an abstract of the more voluminous report issued by the Commission as the result of a four months' study made last winter. Many of the Department methods received deserved commendation, but suggestions along the lines of improving efficiency were freely given. The lack of sufficient funds for effective work in infant welfare was noted.

—"Under the eugenic marriage law the number of weddings in Wisconsin decreased from 21,052 in 1913 to 17,245 in 1914, a decrease of 3,807, according to announcement today by Dr. C. A. Harper, secretary of the State Board of Health and Vital Statistics."

Too bad, isn't it. Let us all weep, but also let us all analyze this statement. It means that 3807 men in Wisconsin found themselves unfit to assume the marriage relation; that they found themselves in such a physical condition that if the contemplated marriage had been consummated, they would very soon have placed their loving, trusting life-partners in such a deplorable condition that God Almighty himself would have pitied them. It means that 3807 brides have been saved from a life of disease and misery and of both mental and physical anguish, that would have been worse than hell itself. Now let us all weep again.—*The Madison County Doctor.*

—The Municipal School of Midwifery was founded August 7 and will have its headquarters in the Iroquois Memorial Hospital. A faculty of competent physicians will instruct the midwives. Dr. Henry F. Lewis, head of the obstetric department of the Cook County Hospital, will be dean of the school, and associated with him are Drs. Rudolph W. Holmes, William G. Lee, Carey Culbertson, Otto H. Rohrlack, Gilbert Fitzpatrick, Arthur H. Curtis, William H. Rubovits, Joseph L. Baer, Bertha Van Hoosen, Effa V. Davis and Mark T. Goldstine. Attendance at the school cannot be made compulsory, but with the power conferred on the health authorities by recent legislation, it is hoped to induce midwives to take the instruction. A correspondence school for midwives was undertaken several years ago by the Department of Health but it met with little response on the part of the midwives. It is to be hoped that the present more ambitious plan will meet with better success.

Marriages

JOHN F. FAIR, M. D., Freeport, Ill., to Mrs. Frances G. Footett of Mitchell, S. D., July 6.

FRANK EUGENE BALDWIN, M. D., Peoria, Ill., to Miss Margaret Lockwood of Chicago, July 28.

THOMAS REESE FOSTER, M. D., Watseka, Ill., to Miss Edna May Gray, at San Francisco, June 30.

ROBERT CARNAHAN KIRKWOOD, M. D., Chicago, to Miss Elna Rasmussen of Lakeview, Wash., at Seattle, June 29.

FRED HERMAN MULLER, M. D., to Miss Anna D. Fleer, both of Chicago, July 14.

LESLIE L. ROBERTSON, M. D., Livingston, Ill., to Miss Vera K. Frye of Cowden, June 26.

Deaths

AZRO PATTERSON WILLITS, (license, Illinois, 1881), aged 65; died at his home in Keithsburg, Ill., July 17.

EDWARD SUMNERS, M. D. Hahnemann Medical College, Chicago, 1904; aged 37; died at his home in Shirley, Ill., July 16, from cerebral hemorrhage.

HENRY D. SMITH, M. D., Eclectic Medical Institute, Cincinnati, Ohio, 1880; aged 61; for thirty-five years a practitioner of Vandalia; died at his home August 7.

MARGARET E. HENNESSY, M. D., Hahnemann Medical College, Chicago, 1888; aged 58; of Utica, N. Y., died in LaSalle, Ill., April 23, from carcinoma of the uterus.

HENRY E. HALE, M. D., Hospital Medical College of Evansville, Ind., 1883 of McLeansboro, Ill.; a member of the Illinois State Medical Society; died July 6, after an operation for intestinal obstruction.

ROBERT ALLISON BROWN, M. D., Missouri Medical College, St. Louis, 1876; Bellevue Hospital Medical College, 1883; Medical College of Ohio, Cincinnati, 1884; aged 58; a member of the Illinois State Medical Society; died at his home in Humrick, Ill., July 21, from nephritis.

WILLIAM M. JOHNSON, M. D. American Medical College of Cincinnati, Ohio, 1857; a member of the Illinois State Medical Society; a practitioner of Johnsonville, Ill., and for years president Wayne County Medical Society, died at his home August 13, 1915, from carcinoma of the inferior maxilla, aged 86.

WILLIAM H. STENNETT, M. D. Homeopathic Medical College, St. Louis, 1869; aged 82; for forty-three years an official of the Chicago and Northwestern System where he had been successively general passenger agent, assistant to the general manager and auditor of expenditures; died at his home in Oak Park, Ill., July 22.

SAMUEL HENRY MELCHER, M. D., Dartmouth Medical School, Hanover, N. H., 1851; aged 86; for many years a resident of Chicago; surgeon with the rank of colonel during the Civil War; blind for twenty years; died at the home of his daughter in Chicago, August 1.

SIDNEY G. PRATT, M. D. St. Louis University, 1906; aged 36; of Kewanee, Ill.; died about July 9.

BENJAMIN GLEESON, M. D., Rush Medical College, 1902; aged 38; a Fellow of the American Medical Association and a member of the American Academy of Ophthalmology and Oto-Laryngology and Aesculapian Society of the Wabash Valley; oculist and aurist to St. Elizabeth's Hospital, Danville, Ill., oculist to the Chicago and Eastern Illinois Railway and the Illinois Traction System; at one time a pharmacist; died at his home in Danville, July 18.

CHARLES HERBERT BRADLEY, M. D., Northwestern University Medical School, Chicago, 1890; aged 50; a Fellow of the American Medical Association; a member of the Minnesota Pathological Society; from 1904 to 1910, secretary-treasurer and in 1911, president of the Hennepin County (Minn.) Medical Association; for six years assistant physician in the Kankakee (Ill.) State Hospital; for many years a member of the staff of the Minneapolis State Hospital; clinical instructor in medicine in the University of Minnesota in 1912 and 1913; died at his home in Minneapolis, August 1, from disease of the brain. The Hennepin County Medical Society and the visiting staff of the Minneapolis City Hospital, at special meetings adopted resolutions regarding the death of Dr. Bradley, and six members of the Hennepin County Medical Society acted as pallbearers at his funeral.

NEW AND NONOFFICIAL REMEDIES

The following articles, not previously described, have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with New and Nonofficial Remedies:

Caustic Applicators, Special (Silver Nitrate, 50 per cent.)—Wooden sticks, 12 in. long, tipped with a mixture of silver nitrate 50 per cent and potassium nitrate 50 per cent. Antiseptic Supply Co., New York (Jour. A. M. A., July 3, 1915, p. 29).

Enzymol.—An extract of the fresh animal stomach containing the gastric enzyme in active standardized form and having an acidity due to combined hydrochloric acid. Enzymol is stated to be useful as an application to old sores, ulcers and slow healing wounds. It is said to correct offensive odors, to exert a solvent action on pus, sloughing and necrotic tissue and to impart a healing stimulus. For the solution of necrotic bone and in some abscesses hydrochloric acid is added to the diluted extract (Jour. A. M. A., July 24 1915, p. 333).

Book Notices

FRACTURES AND DISLOCATIONS, DIAGNOSIS AND TREATMENT. By Miller E. Preston, A. B., M. D., First Lieut. M. R. C., U. S. A.; Surgical Examiner, Colorado State Board of Medical Examiners; formerly Police Surgeon, City and County of Denver; Instructor in Anatomy University of Denver, and Visiting Gynecologist to City and County Hospital, Denver, Colo., with a chapter on Roentgenology by H. G. Stover, M. D., Professor of Roentgenology School of Medicine, University of Colorado; Member of American Roentgen Ray Society; Visiting Roentgenologist to City and County Hospital, St. Joseph's Hospital, and Children's Hospital, Denver, Col. 860 Illustrations. St. Louis: C. D. Mosby Co., 1915. Price, $6.50.

This new work on fractures and dislocations calls for immediate congratulations to author and publisher. It is one of the best works in the English language on fractures and dislocations. Great stress is laid on inspection, and numerous illustrations, mostly original, are inserted as an aid. A valuable feature is the introduction of illustrations from photographs made almost immediately after receiving of injury. The divisions of the book are rather unique, all the injuries to which a given region is subject (including fractures, dislocations, joint fractures, and fracture-dislocations) being given under the heading of parts. Part I, Upper Extremity; Part II, Head and Trunk; Part III, Lower Extremity; Part IV, Special Subjects. An exceedingly valuable feature is the presentation of Dr. Albee's work on Autogenous Bone Graft. The book is one which every doctor will find very useful and valuable. It sets a standard for the publishers which will be difficult to improve.

A TEXT BOOK OF SURGERY FOR STUDENTS AND PRACTITIONERS. By George Emerson Brewer, A. M., M. D., Professor of Surgery, College of Physicians and Surgeons, New York; Surgical Director, Presbyterian Hospital; Consulting Surgeon, Roosevelt Hospital, assisted by Adrian V. S. Lambert, M. D., Associate Professor of Surgery, Columbia University; Attending Surgeon, Presbyterian Hospital; and by members of the surgical teaching staff of Columbia University. Third Edition, Thoroughly Revised and Rewritten. Octavo, 1,027 pages, with 500 engravings and 23 plates in colors and monochrome. Cloth, net $5.50. Lea & Febiger, Publishers, Philadelphia and New York, 1915.

This edition of Brewer's Surgery presents many new and interesting features. It has been completely revised and all the latest advances in surgery are included, making this single volume an authorative work on surgery. Fourteen collaborators have assisted in the revision, each an authority in his chosen work, which greatly enhances the value of this edition. Chapters which show particularly careful revision are those dealing with hernia, infections of the hand, cellulitis, spinal cord, nerves, head, bone infection, and shock. The illustrations are numerous and very good, especially those made from Lumiere color photographs. It is a book that is valuable to both student and doctor.

PRINCIPLES OF HUMAN PHYSIOLOGY, by Ernest H. Starling, M. D. (Lond.), F. R. C. P., F. R. S., Hon. M. D. (Breslau), Hon. Sc. D. (Cambridge and Dublin), Jodrell Professor of Physiology in University College, London Second Edition, with 566 Illustrations, 10 in Colour. Philadelphia. Lea & Febiger, 706 Sansom Street. 1915. Cloth $5.00 net.

The second edition of this excellent text-book is just from the presses of Lea & Febiger, thus bringing the new work in physiology down to date. The book was written primarily for the use of the student, and as a student's college text-book of physiology, certainly fulfills the purpose for which is was intended.

So much new work has been accomplished in physi-

ology during the last few years, that every medical man needs to thoroughly review the subject, and new texts are a necessity for the purpose.

The author takes up the study of the various tissues or organs of the body in a methodical way. The book is not sufficiently large to contain all the experimental work done in this branch of science, but does contain in most instances reference to various methods of experimentation. Nearly six hundred illustrations accompany the text. Altogether, we think it a valuable text-book and recommend it to our readers.

A Text Book of Chemistry and Chemical Uranalysis for Nurses. By Harold L. Amoss, S. B., S. M., M. D., Dr. P. H., formerly Chemist, Hygienic Laboratory, U. S. Public Health Service; Physiological Chemist, U. S. Bureau of Chemistry; Instructor in Physiological Chemistry, George Washington University Medical School; Assistant in Preventive Medicine, Harvard Medical School. 12mo., 268 pages. Cloth, $1.50 net. Lea & Febiger, publishers. Philadelphia and New York, 1915.

The author in the preface to this little book makes an appeal for an extended course in chemistry for nurses, and the book is written to fulfill the needs of the nurse for such an extended course.

The author has written in a plain concise manner, and has presented the subject in such a way that he has made interesting reading from a dry subject.

Every nurse should have the book, and we would recommend it for use in training schools.

Cancer, Its Study and Prevention, by Howard Canning Taylor, M. D., Gynecologist to the Roosevelt Hospital, New York; Professor of Clinical Gynecology, Columbia University; member of the American College of Surgeons, American Society for the Control of Cancer, American Medical Association, New York Obstetrical Society, etc. Lea & Febiger,

Philadelphia and New York. 1915. Price $2.50 net. ally welcome at this time. Nearly all medical journals have been publishing many articles on cancer during the last month, and this book will help to continue the work of the journals.

The author voices an appeal for more information regarding the disease and for a better use of the facts now at our command. He treats of the various forms of cancer in their several anatomical situations and of their metastases, emphasizing the question of early diagnosis and better diagnosis. The book is valuable and is an addition to cancer literature.

The Psychology of the Kaiser. A Study of His Sentiments and His Obsession, by Morton Prince, Boston: Richard G. Badger, Toronto: The Copp Clark Co., Limited, London: T. Fisher Unwin, 1915. Price, 60 cents net.

This little book is full of interest to those who, in their analysis of the Kaiser, fail to discover his claim of Divine Right for himself and the house of Hohenzollern, as he has claimed in the following utterances:

"It is the tradition of our house that we, the Hohenzollerns, regard ourselves as appointed by God to govern and to lead the people whom it is given us to rule."

detail the experimental work on various questions and the results. As the authors of these papers are working in a laboratory with excellent control facilities, the results and the data therefrom are of importance to the medical profession.

Exercise in Education and Medicine. By R. Tait McKenzie, A. B., M. D., Professor of Physical Education, and Director of the Department, University of Pennsylvania. Octavo of 585 pages, with 478 illustrations. Philadelphia and London. W. B. Saunders Company, 1915. Cloth, $4.00 net; Half Morocco, $5.50 net.

Until very recently exercise has occupied a very small space in college curriculae or in medical practice in this country. During the last few years athletic exercise is being taught and practiced more and more—sometimes not wisely. It is a lamentable fact that many of our athletically trained men have hearts that do not permit their owners life insurance. This, of course, is not owing to a correct athletic training, but rather to an unwise method.

The author has gone far into the field of physical exercise as it relates to the building of a good physique, to good health, to the correction of deformities, and to its place in our school systems. He tells one, and also demonstrates by numerous photographs, what is being done in this line in other places, both in this country and in Europe.

The book is of most value to students and teachers of Physical culture. It will be appreciated by educators and the medical profession.

And again:

"I regard my whole position as given to me direct from Heaven, and that I have been called by the Highest to do His work, by One to Whom I must one day render an account."

This book shows how the Kaiser's almost insane obsessions about his "divine rights" and his fear of democracy have plunged the world into the present war.

A Manual of the Practice of Medicine. By A. A. Stevens, A. M., M. D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania, Lecturer on Medicine in the University of Pennsylvania. Tenth Edition, Revised. 12mo. of 629 pages, illustrated. Philadelphia and London. W. B. Saunders Company, 1915. Flexible Leather, $2.50 net.

The tenth edition of this popular handbook by Dr. Stevens will be welcome to medical students. The text has been revised, some chapters have been rewritten, and a number of new ones have been added.

A number of special subjects are given in a brief way. The book is primarily for students' use and for that purpose is admirably written and planned. We recommend it to the student body.

Collected Papers from the Research Laboratory of Parke, Davis & Co., Detroit, Mich. Dr. E. M. Houghton, Director. Reprints.—Volume 3, 1915.

Parke, Davis & Co. have issued the third volume of Collected Papers from their Research Laboratory. These papers are written by scientific men, giving in